DOCUMENT RESUME

ED 196 204	EC 131 331
AUTHOR	Whipple, Guy M., Ed.
TITLE	The Twenty-Third Yearbook of the National Society for the Study of Education. Part I. Report of the Society's Committee on the Education of Gifted Children.
INSTITUTION	National Society for the Study of Education, Chicago, Ill.
PUB DATE	Feb 24
NOTE	442p.
EDRS PRICE	MF01/PC18 Plus Postage.
DESCRIPTORS	*Academic Achievement; Curriculum; Elementary Secondary Education; Exceptional Child Research; *Gifted; History; *Student Characteristics; Student Placement; *Talent Identification

ABSTRACT

The document contains approximately 30 author contributed chapters and papers on the education for and research prior to 1924 on gifted students. Section I contains general reports and summaries; while Section II focuses on special studies on the areas of the physical and mental traits, educational achievements, case studies, physical condition and growth, attainments, attainments of the gifted in speical classes as compared to those in ordinary classes, careers of accelerated children, and gifted children in the high school. Among entries are the following titles and authors: "Methods of Selecting Superior or Gifted Children" (B. Baldwin); "Some Administrative Phases in the Education of Gifted Children" (L. Smith); "The Curriculum for Gifted Children" (H. Rugg); "The Physical and Mental Traits of Gifted Children" (L. Terman); "The Attainments of Gifted Children under Individual Instruction" (C. Washburne); "Some Attainments of Gifted Children in Segregated Classes at Louisville" (M. Patrick); "A Study of the Results of Homogeneous Grouping of Abilities in High School Classes" (R. Cook); "A Study of the Effects of Classification by Intelligence Tests" (E. Moyer); "The Administration of the Superior Students in the University of Chicago High School" (W. Reavis); and "Providing for Superior Students in the Social Studies" (H. Hill). A final section contains an annotated bibliography (453 references) on gifted children and their education by T. Henry. Also provided is information about the National Society for the Study of Education. (SBH)

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THE
TWENTY-THIRD YEARBOOK

OF THE

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

PART I

REPORT OF THE SOCIETY'S COMMITTEE ON THE EDUCATION OF GIFTED CHILDREN

Edited by
GUY M. WHIPPLE, Ph. D.
Secretary

This Yearbook will be Discussed at the Chicago Meeting
of the National Society, Tuesday, February
26, 1924, 8:00 P. M.

PUBLIC SCHOOL PUBLISHING COMPANY
BLOOMINGTON, ILLINOIS
1924

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EDITOR'S PREFACE

The conditions under which this *Yearbook* has been developed are set forth in the opening chapter—"Historical and Introductory." At the risk of being repetitious, however, it may be stated here that despite extended correspondence and two sessions for the personal interchange of views, the Committee has not found itself in agreement upon some of the fundamental principles involved in the education of gifted children. The reader will doubtless feel convinced that the presentation of individual and independent convictions has, nevertheless, a certain merit when newer educational movements are under discussion. We suggest that this volume be considered as a preliminary report. We trust, too, speaking as chairman of the committee, that the Society may feel disposed to continue the Committee in the hope that later on it may be possible to issue another *Yearbook* on the same topic that shall include a definite program to which all members of the Committee may subscribe.

G. M. W.

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SECTION I.—GENERAL REPORTS AND SUMMARIES

CHAPTER I

HISTORICAL AND INTRODUCTORY

G. M. Whipple
Professor of Experimental Education, School of Education,
University of Michigan

The idea of providing special educational facilities for children of superior intelligence is by no means a novel one. Students of education need only be reminded, for illustration, of the plan advocated by Plato, who based the educational scheme of his ideal Republic upon a thorough-going caste system—a system which he seems to have borrowed from the social constitution of the Hindoos. It will be remembered that Plato proposed three classes in his ideal state—laborers and artisans, warriors, and magistrates. There was to be no education for laborers and artisans, who needed only to learn a trade. The carefully prescribed education of the middle class was based upon music (including literary and esthetic training) and gymnastics, while the training of the highest class included all the sciences and detailed work in philosophy and metaphysics. It is true that Plato was an aristocrat, that his ideal was built upon a pronounced disdain for the common people: yet it is worthy of note that the barriers between the three castes were not insuperable; children of laborers and artisans who displayed uncommon ability were to be elevated to the magisterial group, while children of magistrates who displayed no competence were to be remanded to the artisan-laborer group. I have sometimes wondered whether some of the critics of the present-day movement for the individualization of instruction, especially the critics who seem to fear that the classification of school children on the basis of intelligence tests threatens to undermine "the foundations of democracy"—whether these critics may not have had these castes of Plato in mind and failed to understand that at any rate, those who now believe in providing adequate opportunity for gifted pupils are perfectly willing that the avenues into the realm of the aristocracy of brains shall be wide open to any who may demonstrate their fitness to attain it.

But it is not our intent here to trace through the history of education the thread of interest in the specially endowed child. Rather it is our intent to mention briefly some of the more conspicuous educational and psychological developments that have combined to produce the interest evinced in the problem at the present day. One of these developments is the study of the psychology of genius, of the factors contributing to the achievements of great men—and the allied studies of mental inheritance; another is the natural attention to the subnormal child, with its obvious implication of attention to the supernormal child; another is the perfecting of adequate instruments for measuring capacity for learning; another is the reaction against the mechanizing tendencies of the modern system of school grades.

STUDIES OF GENIUS

Lombroso's *Man of Genius* (1891), Galton's *English Men of Science* (1874), Galton's *Hereditary Genius* (1869), Constable's *Poverty and Hereditary Genius* (1905), Cattell's *A Statistical Study of American Men of Science* (1906-1910) are characteristic studies that have helped define the problem of the origin of superior achievement, especially to raise the issue as to the relative contribution of inherited constitution and educational training in the production of greatness.

Allied to these statistical studies are the detailed accounts which have been supplied from time to time of the training and of the exploits of *Wunderkinder* and of musical, mathematical, and other prodigies. Some of these are sufficiently interesting on their own account to be mentioned here.

PUBLISHED ACCOUNTS OF THE EDUCATION OF GIFTED INDIVIDUALS

In 1721, there was born in Lübeck, Germany, a boy named Christian Heineken, whose career from babyhood to his death in his fifth year is described at some length by his tutor.[1] When this baby was ten months old, his parents were struck by his precocity of observation and speech and promptly engaged a tutor for him. His education during babyhood included the learning by heart of biblical stories, verses on the creation, followed by the history of the world, arithmetical fundamentals, the names of the bones and muscles. When he was four years of age he could recite, according to his tutor, 1500 Latin proverbs and numerous anecdotes in French, could read printed and written German, answer any question in history, and so on. His fame spread throughout Europe; crowds came to marvel at his erudition, and he entertained the king of Denmark in a formal visit. Unfortunately, after his return to Germany the boy grew gradually weaker and died at four years, four months—truly, as his tutor declares, "a wonder for all time."

In a way, we may find in the narrative of this *Wunderkind* most of the problems that confront the members of the Society's Committee in this *Yearbook*. Thus, we may inquire, by assuming that this Heineken boy were before us now: (1) By what methods can the real degree of intellectual capacity of this youngster be determined? (2) How early in his life can we correctly diagnose his intrinsic capacity? (3) Is the child's ability all-round or restricted to some specific trait or group of traits, like memory and linguistic fluency? (4) How early ought systematic training to be begun? (5) Is there danger of 'forcing' his mental development at the expense of his physical or social development? (6) What ought to be the subject matter and what the methods of instruction in the early years of his life? (7) Is his exceptional accomplishment due primarily to his hereditary endowment, exceptionally skillful training, or to some happy combination of nature and nurture?

These and similar questions of great practical import may be kept in mind in reading other accounts of extraordinary children. They arise naturally, for instance, in reading Wiener's translation of "*The Education of Karl Witte*," which brings out strikingly the plea for beginning systematic training with the very dawn of intelligence and supports the plea by demonstrating its effect in the case of the younger Witte, who was reading German, French, Italian, Latin, and Greek at the age of nine, matriculated shortly after at the University of Leipsic, was awarded the Ph.D. "with distinction" before he had reached his fourteenth birthday, made a Doctor of Laws two years later, and then appointed to the teaching staff of the University of Berlin![2] At 23 Witte had issued an essay "On Misunderstanding Dante" which is regarded as one of the most important literary contributions of the nineteenth century.

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[1] C. von Schöneich. *Leben, Taten, u. Tod eines sehr klugen u. sehr artigen vierjähr. Kindes, Christian Heinrich Heineken aus Lübeck.* 2te Aufl., 1779. See for summary, *Zeits. f. Kinderforschung,* 15:1910, 225-9.

The same questions arise with regard to the remarkable careers of James Thomson and his brother William (Lord Kelvin) and of John Stuart Mill. The elder Thomson went to the greatest pains to give systematic personal instruction to his sons from their very infancy, teaching them, for instance, to read and spell almost as soon as they could speak, with the consequence that they were admitted as students at the University of Glasgow when twelve and ten years of age, respectively, where they easily not only held their place but also took a variety of prizes for unusual scholarly achievement. As for Mill, one may cite his own statement: "I have no remembrance of the time when I began to learn Greek. I have been told that it was when I was three years old—I learned no Latin until my eighth year. At that time I had read, under my father's tuition, a number of Greek prose authors, among whom I remember the whole of Herodotus and of Zenophon's *Cyropaedia and Memorials of Socrates*. Some of the lives of the philosophers by Diogenes Laetius, part of Lucian and *Isocrates ad Demonicum* and *Ad Nicoclem*."[3]

In the United States there have been published in recent years several similar accounts of the training of gifted children that certainly challenge the attention of the thoughtful educator. Thus, for example, Dr. Boris Sidis was impelled to write his *Philistine and Genius* (1911) as a protest against the formalism and general inadequacy of the American public school because his son, William James Sidis, failed, in his opinion, to find suitable training there.

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[2] See for further details, H. A. Bruce, "The story of Karl Witte." *The Outlook*, 100: 1913, 211-218.

[3] John Stuart Mill, *Autobiography*, Vol. 1, p. 5.

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The younger Sidis appears to represent a type of special development in certain fields of mathematics. According to various published accounts,[4] Sidis received his first training before the age of two. He learned to read and to spell by the aid of blocks before three, learned the typewriter well before four, entered school at six, where he was said by one writer to have "finished the grades" in half a year. However, we find that he studied at home for two years before entering the high school, where he remained but three months. During the next year or two he was tutored mainly in mathematics and was able in that time to master algebra, geometry, trigonometry, differential and integral calculus. He entered Harvard as a special student at eleven and devoted himself mainly to mathematics and science.

Other contributions of like sort in this country are A. A. Berle's *The School in the Home* (New York, 1913), and Mrs. Winifred Stoner's *Natural Education* (Childhood and Youth Series, Indianapolis). In the former, the Rev. Berle tells how his four children were taught. Despite the fact that the eldest entered Radcliffe at fifteen and the second child entered Harvard at thirteen and a half, and the other two are reported as making equally rapid progress, it is declared that "they are not children of exceptional ability." Once more, then, we are confronted with the assertion that altered methods of instruction will very decidedly abridge the period required to fit our youths and maidens for entering our higher institutions of learning.

In the latter book, Mrs. Stoner describes the early training of her daughter, Winifred, who has also been the occasion of numerous magazine articles. Her presentation has added significance because Mrs. Stoner proposed at one time, if we recall correctly, to establish a series of training schools to teach the principles of the 'Stoner' method. Naturally, the implication is found here, as in the case of Witte, Berle, and Sidis, that it is skillful training rather than uncommon inheritance that produces such marvelous results as are chronicled. If this be true, it constitutes an obvious challenge to every teacher, every school administrator, and every parent. If, for instance, it is true, as Mrs. Stoner asserts, that any child can be taught to read English prose fluently at the age of three, there is something radically wrong with our present methods of teaching reading.

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[4] See for instance, H. A. Bruce, "Bending the twig." *Amer. Mag.* 60:1910, 690-5 and Katherine Dolbear, "Precocious children." *Ped. Sem.*, 19: December, 1912, 461-491.

Supplementing these narratives the reader will find in Section II several interesting case histories of gifted children, compiled by Dr. Waddle.

THE STUDY OF SUBNORMALS

Turning to other factors already mentioned as lying behind the present interest in the gifted child, there has been undoubtedly some influence exerted by the wide-spread interest in the problem of the subnormal child. I mean that a full recognition of the educational problem raised by the subnormal intelligence more or less naturally directs attention to the contrasting group lying at the other end of the scale of general intelligence. May it not be equally important, one naturally asks, to make special provision for the supernormal child? This is a point of attack that is well set forth in various comments by L. W. Stern, the Breslau educational psychologist.

THE PERFECTING OF INTELLIGENCE TESTS

Closely allied with this factor is another contributing agency, namely, the rise and perfecting of intelligence tests. As everyone knows, the first successful method of testing intelligence, that of Binet and Simon, was drafted specifically to meet a request of the school authorities of Paris for a reliable method of selecting pupils for special classes of the subnormal. The application of the Binet scale naturally thrust into prominence the fact that deviations from the average or normal performance were practically just as frequent and just as large in the plus as in the minus direction. So that, while the Binet scale is perhaps not ideally adapted in every respect for detecting and measuring degrees of superiority, practically it has served very well indeed for this purpose. Moreover, with the further extension of intelligence testing by the perfecting of group methods of examination, the method of tests assumed added administrative significance. It became possible, as the present writer showed conclusively in 1917,[5] by means of group tests of intelligence to select pupils of superior school capacity with a degree of precision far greater than that obtainable by means of school marks and teachers' estimates of intelligence. The same investigation demonstrated what others had already asserted, that pupils thus properly selected can do two years of regular school work in one year, without forcing and without detriment to their health.[6] Since this investigation, the establishment of special classes for the gifted has become much more common, and I believe it can be asserted without fear of contradiction that the use of systematic tests, both psychological and pedagogical in type, has everywhere been found a more reliable and satisfactory method of selection than the use of ordinary classroom marks or the opinions of teachers, however carefully these have been rendered.

The impression should not be conveyed from what has just been said that my own experimental class of gifted children was an utter novelty. On the contrary, I was led to undertake my investigations primarily in an effort to refine and systematize the study of the selection and training of gifted pupils that had already been in process in various school systems. I had been particularly impressed, for example, by the superior results attained in a special class of gifted pupils that I had visited at Louisville, Ky., as well as by the reports of the 'preparatory centers' established in such cities as Baltimore, Indianapolis, and Worcester.

THE REACTION AGAINST THE MECHANIZING TENDENCIES OF SCHOOL GRADES

The rise of these and other plans for the more effective training of gifted pupils, to return once more to the factors lying behind the present interest in the gifted child, is a natural outcome of the recognition of individual differences in their relation to the mechanizing tendency of the graded school system. The advent of compulsory education, the increase in our school population, and the rise of cities and large towns all tended toward more systematic grading, larger classes, standardized courses of study, and uniform methods of instruction. These rose naturally in the interests of administrative economy. But the problem of retardation and elimination stimulated study of age-grade distribution and it became increasingly evident to thoughtful school administrators that the economies of administration secured by the regular grade system were purchased at a high price when the needs and capacities of individual pupils, both dull and bright, were considered.

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[5] G. M. Whipple, *Classes for Gifted Children*, Bloomington, Illinois.

[6] In fact, one writer, Petzoldt, uses this attainment as a practical definition of supernormality; that is, a supernormal, or gifted, child is defined, for the purposes of the school, as a child who can compass two years of work in one year without undue forcing. Petzoldt further estimated that ten percent of the pupils in the German schools could qualify in this category. See J. Petzoldt, "Sonderschulen für hervorragend Befähigte." *Neue Jahrbücher f. Päd.*, 14: 1904, 425-456; also a later article, "Die Einwände gegen Sonderschulen f. hervorragend Befähigte." *Ibid.*, 28: 1911, 1-24.

The administrative problem became, then, how to retain the advantages of a comprehensive grading scheme with systematic promotion and at the same time to introduce a reasonable amount of flexibility. The various solutions offered for this problem have been reviewed in the publications of this SOCIETY,[7] yet brief review of some of them may be pardoned at this point.

Perhaps the first systematic plan for injecting flexibility into the stock grade system was that developed at St. Louis by Dr. W. T. Harris, who in his reports for 1868-9 and 1871 to 1873, as well as in 1872 before the National Education Association, presented the advantages of a system of school progress whereby pupils were promoted at short intervals—as short as five weeks in the lower grades—and gifted pupils in each section could, without much difficulty, be passed on to the section just above their own. It is interesting to note that Dr. Harris urged as one point in favor of this plan, that it held bright pupils to the work of which they were capable and kept them from acquiring habits of laziness.

In 1886, Mr. W. J. Shearer, then superintendent of schools at Elizabeth, N. J., elaborated a plan whereby three or four sections were formed within each of the eight grades in such a way that pupils of nearly the same attainments were grouped together. Each section was allowed to do as much work as it could, and individual pupils were also promoted to sections above them, without formal examination, as soon as they demonstrated fitness for that work. This "Elizabeth Plan" was later described in detail by its deviser.[8]

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[7] See T. S. Henry, "Classroom Problems in the Education of Gifted Children," *Nineteenth Yearbook, Part II*, Ch. I. For other accounts see (1) W. H. Holmes, *School Organization and the Individual Child*, Worcester, Mass., 1912. (2) R. A. F. McDonald, *Adjustment of School Organization to Various Population Groups.* Teachers Coll. Contr. to Educ., No. 75. (3) J. H. Van Sickle, L. Witmer, and L. P. Ayres, *Provision for Exceptional Children in Public Schools.* U. S. Bur. Educ. Bull. 1911, No. 14.

In 1891 there came into existence at Cambridge, Mass., a plan that has had much influence and been widely copied, with various modifications. This "Double-Track Plan," or "Cambridge Plan," embodied two distinct 'tracks' along which pupils could progress through Grades IV to IX. Pupils on the regular track took the six years' work in the regulation six years. Brighter pupils on the fast track did the same work in four years and were classed as in Grades A, B, C, or D. Provision was made for coaching dull pupils as well as bright pupils, and also for transfer from one track to another at certain common points which permitted making the six grades in five years. During the 17 years this plan was in operation, 10,203 pupils graduated from the grammar schools, 7 percent of whom completed the last six grades in four years, 28 percent in five years, 50 percent in six years, and 15 percent in seven or more years.

This "Cambridge Plan" in 1910 was modified by dividing the first seven years of the regular elementary course into three grades each and the eighth year into two grades, thus making twenty-three grades in all for the eight years. Parallel to this regular course there was another which covered the same ground in six years. This was divided into seventeen grades. In operation, it is evident that there are many opportunities of passing from one course to the other, so that the rate of progress may be varied to meet almost any need.

The earlier "Cambridge Plan" was adopted with modifications by various school systems. Among these modified plans are several that have found a place in the literature of school administration under the names of the communities in which they arose. Thus the "LeMars Plan" and the "Odebolt Plan" and the "Portland, Oregon, Plan" may be regarded as modifications or extensions of the original "Cambridge Plan."[9]

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[8] W. J. Shearer, *The Grading of Schools.* 1898.

In 1894, before the extension and development of the "Cambridge Plan" just cited, there was introduced into the schools of Woburn, Massachusetts, a unique system of promotion to which the name "Double Tillage Plan" has been applied. According to this plan, which was in operation from 1894 to 1903, the work of each school grade was covered in the first half year and then worked over again in greater detail during the second half year. Pupils of superior ability who were able to get an adequate return from the efforts during the first half year could be promoted to the grade above at the middle of the year and thus accomplish two years' work in one.[10] From the reports of this work it appears that more than a thousand pupils received mid-year promotions during the nine years mentioned and that nearly a thousand also obtained a second promotion at the end of the year. We have at our disposal no reports from cities in which this Woburn plan was undertaken. At Woburn it was abandoned finally, save for the first two grades, primarily on account of the gradual increase in the subject matter of the elementary-school curriculum, which made it more and more difficult for pupils to gain the extra promotion by covering the year's work in half a year.

In 1895, Mr. J. H. Van Sickle, who has devoted much attention to special provision for gifted children, was superintendent of the North Side schools of Denver, Colorado. At that time Superintendent Van Sickle developed a plan which we would now characterize as an "Enrichment Plan." The saving of time was given relatively little emphasis, but the brighter children were given opportunity and encouraged to do both more extended and more intensive work than the rest of the class. This extra work was not to be done at home, but in the main during free periods when the other children were reciting.

About 1900 there appears to have been a sudden increase in the interest felt on the part of school administrators in plans for flexible promotion. The appearance of Mr. Shearer's book in 1898 and the discussion of grading and promotion at the National Education Association meeting in 1898 were doubtless factors contributory to this increase of interest.

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[9] For details of these modified plans see Holmes, W. H. *Op. cit.*, pp. 39-43.

[10] Annual Reports, School Committee, Woburn, Mass., especially 1903-4.

About this time there appeared accounts of several interesting plans. Among these may be mentioned the "Santa Barbara Concentric Plan," according to which each grade was divided into three sections, 'A,' 'B,' and 'C.' All sections were required to master the minimal essentials of the curriculum, but the 'B' pupils were to do more extensive work than the 'C' pupils and the 'A' pupils more extensive work than the 'B' pupils. When the 'A' pupils of any grade were ready for the work of the next grade, they were promoted to the 'C' section of that grade. Opportunity was also provided for transfers from section to section within any grade at any time. Despite this scheme for individual promotion from section to section, the general effect of the "Santa Barbara Plan" seems to have been to emphasize the enrichment of the course of study of the gifted children rather than to accelerate their school career. It will be seen that some elements of this plan appear later in the "Detroit Plan."

About this period there also appeared in Chicago, New York, and other large cities a plan referred to sometimes as the "Large-School-Plan" and, sometimes, as the "Group System." As the name implies, the plan is most feasible in city schools where the number of pupils in a given grade is sufficient to divide them into three or more sections. It is assumed that the division is made on the basis of the ability of the pupils.

This "Large-School-Plan" has been elaborated in two somewhat different directions—in one there has appeared the so-called "Constant Group System," according to which the assignment of pupils to a given group is made for a definite school period and promotions from group to group, or grade to grade, are made only at regular and natural intervals. Usually this plan is so operated that at these promotion periods pupils may be promoted in certain subjects in which they are well prepared, but not in other subjects in which they are less well prepared. The general aim of this system is to give to the bright pupil an opportunity to advance rapidly in those subjects in which he is competent.

In another direction there has appeared the so-called "Shifting Group System," according to which there may be as many groups in as many subjects as the teacher desires, and in which promotions may take place at any time. The actual aim in this system, according to Holmes, has usually been to bring slow pupils up to the grade standard and to encourage gifted pupils to do thorough and careful work.

In 1901 there appeared the interesting contribution of Superintendent P. W. Search,[11] which embodies an argument in favor of an extreme type of individualization of instruction. Mr. Search says that: "Experience shows conclusively that even in a well graded class there are some pupils who can do three times as much work as others," and that if class instruction be done away with and the individual be allowed to progress at his natural pace, there will be secured for gifted children "full, free opportunity to live up to the best that is in them." The "Pueblo Plan," as Mr. Search's plan is usually termed, appears to have broken down partly on account of its expensiveness, but it is also said that in actual practice the emphasis seems to have been laid upon the instruction and coaching of the backward pupils rather than upon the facilitation of the work of the gifted.

This notion of individual instruction and individual progress thus set forth by Search in 1901 came again into prominence in 1913 when Frederic Burk, the Principal of the San Francisco Normal School, inaugurated a similar plan in the elementary school connected with that institution. Writing some five years later of the results, Burk declares[12] that competent pupils demonstrate their fitness to be placed upon what he terms a 'self-reliant' program, whereby they use their own judgment in deciding upon what amounts of time they shall give to the various subjects and proceed very largely on their own initiative. He also declares that superior pupils can by this method finish the regular eight-year program of study in five years.

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[11] Search, P. W., *An Ideal School.* 1901.

[12] Burk, Frederic. "Individual instruction vs. the lock-step system." *The American City*, 18: 1918, 327-330.

More recently the principles advocated by Burk in the organization of his normal school have been further developed and extended, with systematic supplementary work of a socializing nature, in the "Winnetka Plan," developed by Superintendent C. W. Washburne of that city. How that system operates to facilitate the progress of unusually competent pupils is described elsewhere in this volume.

In 1902 there was inaugurated at Baltimore a "Preparatory Center Plan" whereby pupils who had completed the sixth grade with distinct success were brought together in a common class and given departmental instruction so arranged as to cover in two years not only the regular work of the seventh and eighth grades but also a considerable fraction of the first year work of the high school. In 1907 Superintendent Van Sickle presented the merits of this plan at the meeting of the National Council of the National Education Association and the same topic was continued in the following year, when Mr. C. H. Kendall, then superintendent of schools at Indianapolis, described the operation of two similar centers that had been established in that school system. A few months later, the Committee on Provision for Exceptional Children in the Public Schools presented its preliminary report to the Council and in 1911 a still more elaborate discussion of this matter appeared in the Bulletin of the Bureau of Education prepared by Van Sickle, Witmer, and Ayres.[13]

Writing in 1910, Van Sickle[14] reported that, despite obstacles raised by some of the parents and pupils as well as teachers, there was statistical evidence that the selected pupils had distinctly profited by their sojourn in the preparatory centers, whether by gaining time or gaining credits without gaining time. Similar provisions for gifted pupils in the upper grammar grades have been in operation, according to Holmes, in the Boston Latin School and in schools at Providence; Worcester, Massachusetts; Portsmouth, New

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[13] Van Sickle, J. H., Witmer, L., and Ayres, L. P. *Provision for Exceptional Children in Public Schools.* United States Bureau of Education Bulletin, 1911, No. 14.

[14] "Gifted children in the public schools." *Elem. Sch. Teacher*, April, 1910, 357-366.

Hampshire; Richmond, LaPorte, Crawfordsville, Goshen, Madison, and Indianapolis, Indiana; Joliet and Aurora, Illinois; East Saginaw, Iron Mountain, Kalamazoo, and Grand Rapids, Michigan; York and Lincoln, Nebraska; Lead, South Dakota; McAlister, Oklahoma; Harrisburg, Pennsylvania;[15] Lake George and Warrensburg, New York; and New Orleans, Louisiana.

Comments on the operation of similar special classes at Battle Creek, Michigan, supplied the writer by Superintendent W. G. Coburn, are as follows:

> "In the fall of 1915 the city of Battle Creek decided to bring together in one group about thirty of the best pupils who were completing the sixth grade. The course was so arranged that the group could finish the seventh, eighth, and ninth grades in two years, thereby gaining a year. For three or four years we accepted the teacher's recommendation only, which was not entirely satisfactory; then we chose a class recommended by our department of tests and measurements and ignored the teacher's recommendations. This plan failed because so many elements entered into the success of the pupil which could not be measured by the mental and educational tests. We are now taking into account both teachers' opinions and the recommendation of the department of tests and measurements. The plan works admirably and is the most satisfactory arrangement we have yet found.
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> "The pupils, under this plan, are given work in Latin, mathematics, English, history, and manual training or domestic science, and in the next two years are prepared for the tenth grade of the high school. In connection with the study of Latin, the pupil will get his English grammar; the arithmetic and algebra will be included under mathematics; the history will include American history, civics, and ancient history; and the English will include the composition and reading usually done in the seventh, eighth, and ninth grades, but considerably shortened. This is a modified course and the 7 B pupils gain a year by entering the class."

The "Newton Plan" is associated with the work of Dr. F. E. Spaulding while superintendent of schools at Newton, Massachusetts, 1904-14. One feature of this plan is the employment of "unassigned teachers" who have no regular class instruction but who are placed in charge of a special room to which come pupils in need of special assistance. A second feature of the "Newton Plan" is the abolishment of the grade lines as barriers to the advancement of pupils; that is, grades are used to designate a certain kind of work at a certain place in the course of study. Any pupil or any group of pupils or any class of pupils that completes the work of one of these "grades" may immediately undertake the work of the next grade, regardless of the time in the school year. Here, as in the case of the "Pueblo Plan," the efforts of the special instruction thus provided seem to have been directed primarily toward helping retarded and dull pupils who were trying to keep up to grade rather than toward directing gifted pupils who were endeavoring to accelerate their progress through the grades.

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[15] For an account of this work at Harrisburg and also of the earlier use of fast sections, especially in the second and sixth grades, in that city, see Downes, F. E. "Seven years' work with unusually gifted pupils." *Psych. Clinic*, 6: 1912, 13-17.

During the past ten years a variety of plans for handling gifted pupils have been instituted. Special promotion (grade skipping) appears to have become a fairly common feature. On this account the study of its effects published later in this *Yearbook* will be read with interest by many superintendents.

The formation of special segregated groups, on a quasi-experimental basis, has also been reported from several cities. On the basis of doubtless quite incomplete reports we may cite as illustrative of the method of sectioning within classes—in the elementary schools: Everett, Massachusetts; Kansas City, Missouri; Cincinnati, Ohio; Kalamazoo and Detroit, Michigan; and in the high school: Salt Lake City, Omaha, New York, Philadelphia, Providence, Spokane, Middletown (Connecticut), Highland Park (Michigan), Cicero (Illinois), and Marshfield and West Allis (Wisconsin).

Among cities that are known to have provided definitely segregated classes for gifted pupils are Berkeley, Los Angeles, and San Diego, California; Meriden, Connecticut; Oak Park, Illinois; Indianapolis, Indiana; Kansas City, Kansas; Louisville, Kentucky; Boston and Worcester, Massachusetts; Battle Creek, Detroit, Grand Rapids, and Jackson, Michigan; St. Paul, Minnesota; St. Louis, Missouri; Newark, New Jersey; New York City and Rochester, New York; and Cleveland and Cincinnati, Ohio.

In Section II of this volume will be found special studies from some of these cities, as, for example, Cicero, Detroit, and Louisville. The work in others is referred to in several of the chapters immediately following this one. A brief statement of the method of handling gifted children in two Michigan cities with which the writer is familiar may be made, however, at this point, since these cities illustrate certain characteristic developments of the past few years.

In the report by Miss Engel (Section II) reference is made to the "Special Advanced Classes" that were in operation in Detroit a few years ago in the higher grades. For various reasons these classes were discontinued after a period of successful operation. One reason for their discontinuance was the adoption in Detroit of a fundamentally new policy of administering the work of the first six grades which included, among other things, express provision for superior children from the first grade up. The core of this new policy lies in the conviction that it is particularly important so to advance the school progress of all pupils (saving the very inferior) that they may enter the large intermediate (junior high) schools at about the beginning of the adolescent period and thus have full opportunity to utilize the differentiated and practical course of study of these schools before the end of the period of compulsory school education. To all intents and purposes, then, "grades" mean in Detroit the number of years that pupils have attended the schools, since, at least in theory, every pupil advances one grade a year. It needs no expert to understand that the logical outcome of this policy is the necessity for dividing the pupils early in their careers into sections of different capacities and of so modifying the course of study and the methods of instruction as to meet these different capacities for school work. Consequently, in September a group intelligence test[16] is given to every pupil who enters the first grade in Detroit. From the scores secured the pupils are classified into seven degrees of general intelligence, ranging from a rating of A through B, C plus, C, C minus, and D to E. The 'A' and 'B' pupils are then grouped together and designated as the 'X' section. The 'D' and 'E' pupils are

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[16] For further details see (1) C. S. Berry. "The classification by tests of intelligence of ten thousand first-grade pupils." *Jour. of Educ. Research*, 6: Oct., 1922, 185-203; (2) W. K. Layton. "The group intelligence testing program of the Detroit public schools." *Twenty-first Yearbook* of this SOCIETY. 1922, Part II, Ch. II.

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similarly grouped and designated as the 'Z' section. The remaining pupils, those with average ability, form the 'Y' section. Roughly, the X section contains the best 20 percent, the Z section the poorest 20 percent, and the Y section the middle 60 percent of the first-grade entrants. The pupils are taught, then, in these three sections X, Y and Z. The type of work, its pace, and the methods of presentation are supposed to be adapted to the needs of superior, average, and inferior pupils, respectively. Transfers of pupils, whose classification by the intelligence test turns out to have been unsatisfactory, are made upon re-examination and joint recommendation of the staff of the Psychological Clinic and the teachers and principals concerned.

One of the numerous obstacles that have been encountered in the administration of this plan in Detroit consists in the tendency of the grade principals to concentrate their attention upon the Z section. In many of the schools the best teachers were assigned to the dullest pupils, apparently on the theory that skillful teaching would accomplish the impossible for them and the correlative theory that the bright pupils could get along anyway and hence did not need particularly skillful teaching. The fallacy of this theory has been recognized, and attempts are being made to direct more attention to the needs and possibilities of the X sections.

Another of the obstacles that has been encountered, not only in Detroit but in other cities where serious attempts are being made to provide for gifted children, consists in the decided lack of information or agreement as to what alterations should be made in the course of study and in the methods of instruction of the X group. This is a problem of great interest and importance. It unrolls itself into numerous part problems, each of them difficult of immediate solution. Thus, we must seek answers to such questions as: "How much faster can an X child work than a Y child?" "Should he be taught to read by a different method?" "Should he have less drill or more drill in the fundamentals of arithmetic?" "Or should he have the same amount of drill in a shorter time?" "Should he be allowed or even encouraged to enter the high school at a younger age?" "If he gains time by his superior ability, what shall be done with the time thus saved?" "Should his school day be shorter?" "Should he do more or less outside work and home study?" "Should his attainments in the various school skills be the same as average children or should more be expected of him?" "Should he, for example, be expected to gain the 4th-grade standard speed and accuracy in short division or should he at that grade be expected to excel the 4th-grade standard?" "Should he be considered from the outset as presumptive college material and his course of study shaped primarily for college entrance?" "Should he, as compared with the Y pupil, be given the same or more or less of the manual art subjects?" "Would the answers to any or all of these questions be different if the X sections were more rigidly selected—if, for instance, they were limited to the top 10 percent instead of the top 20 percent?" In the chapters that follow, especially that by Dr. Rugg, will be found further discussion of the problems here raised.

Turning to another Michigan city, the work at Jackson may be cited as an illustration of two different varieties of special classes for the gifted that have appeared within the past decade—I refer to the so-called "speed" classes and "enrichment" classes. Of these two types, the former were the first to be established. Thus, in the fall of 1921 there were in operation three speed classes, enrolling 90 pupils.[17] The grades represented were from the lower third to the upper sixth. All the pupils who were admitted had been found upon examination to rank in the top 15 percent of their age group in a group intelligence test. Substantially, they formed a group with mental ages equal to the grade to be attempted and with I.Q.'s of 115 or better; or, in other words, they were about 1.5 years or more mentally accelerated. The general plan of operation was to keep pupils in these rooms for one semester, during which they did the work of two regular semesters, and then to return them to the regular classes; occasionally unusually capable pupils remained two semesters and did the work of two regular years in one. In these speed rooms a certain amount of accessory work characteristic of the grades in question was reduced in quantity or temporarily eliminated; thus, there was less time devoted to music and drawing and the manual arts than in the regular grades.

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[17] For further details see Helen Davis. "The use of intelligence tests in the classification of pupils in the public schools of Jackson, Michigan." *Twenty-first Yearbook* of this SOCIETY, 1922, Part II, Ch. III.

The general results of these speed rooms have been satisfactory. They have demonstrated that properly selected pupils can accomplish two years of work in one year without detriment to their health. The method is undoubtedly superior to the rougher device of grade skipping, though that can be shown to be successful, despite its roughness.[18] On the other hand, even in this method of bridging the period of acceleration there is obviously a jerky 'feel.' The hiatus and the jump of the grade skipping is removed, but the gifted pupil speeds for five months out of his elementary career only, and for the rest of the time he must keep the slower pace of the average pupil. The administrative advantage of the speed room is that it makes it possible in a smaller school system to bring together under one teacher a sufficient number of pupils of superior ability to form a good-sized working group. The atmosphere of these rooms is remarkable. Problems of discipline disappear; records of attendance and punctuality are high; the morale is unusually fine. There is obvious opportunity for a competent teacher to do much for these pupils in the direction of training them in methods of intellectual work, in habits of study, in attitude toward the school and toward life that shall greatly increase their power to work and go far to ensure that they shall reap the fruits of their potential capacities. It might be well to say at this point that one of the primary arguments for the segregation of the gifted lies in the development of proper attitudes. I mean attitudes like industry and hard work, co-operativeness, responsibility, and initiative. If these wholesome mental attitudes are secured, segregation is worth while, regardless of actual gain in time or in amount of information secured.

The establishment of enrichment classes for the gifted in Jackson represents an effort to provide a more continuous training for pupils of superior endowment. It was felt to be undesirable to 'speed' pupils more than one semester (or at most two semesters) and yet it was desirable to keep these pupils in homogeneous groups. Accordingly, three classes of a new type were organized in which gifted pupils of the fifth and sixth grades are given an enriched course of study. At the present, then, there are in this city of 50,000 population four special classes for the gifted; one, the speed class, is now confined to Grades III and IV, whereas the three enrichment classes (known locally as "Opportunity Classes") are now confined to the work of Grades V and VI, thus illustrating a point brought out elsewhere, that acceleration seems more obvious in the earlier grades and enrichment in the higher grades.

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[18] See the report by Martin in Section II.

The general plan of operation of these enrichment classes will be understood from what has been said. The pupils have been selected by intelligence tests and usually with confirmation from teachers' estimates. Many of them have already attended the speed school. Those who enter the classes in the lower fifth grade may remain in them two years, that is, until they leave to enter the intermediate school.[19] The work includes the regular tasks of the fifth and sixth grades, but this is supplemented by various types of enrichment. The nature of this enrichment work is mentioned in the chapter by Dr. Rugg, and may be omitted here, save to say that, in my opinion, much value would result if teachers of similar classes in various cities could be induced to keep careful journals, or logs, of their daily work; we might thus in a few years arrive at a better understanding of the possibilities of this type of provision for gifted pupils. We should know where and how to save time and energy in their instruction and how best to utilize this time and energy once it had been saved.

THE WORK OF THE COMMITTEE

What has been presented indicates in a sketchy way the situation in this country at the present time. This Society devoted a portion of its *Nineteenth Yearbook* and of its Cleveland, 1920, meeting to a discussion of the situation as it appeared at that date.

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[19] The result of this plan of organization of speed and enrichment classes, together with the possibility of special promotion in the first two grades and the provision for gaining additional points by electives in the junior and senior high schools, is to provide an opportunity for every gifted child in Jackson to capitalize his capacity at every stage of his public school career.

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It was felt that sufficient advance had been made and sufficient interest created to warrant devoting another *Yearbook* and another meeting to the same topic. The Committee that has prepared the 1924 *Yearbook* hoped at first to report in 1923, but the task proved too formidable. The Committee accordingly submitted at that time the following report of progress:

REPORT OF PROGRESS OF THE COMMITTEE OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION ON THE EDUCATION OF GIFTED CHILDREN

Since the Society's meeting in February, 1922, the chairman has sent out over two hundred letters to all those state superintendents of public instruction, superintendents of schools, principals of schools, and directors of departments of research who were thought to be in touch with public school systems in which special provision is made for gifted pupils.

At a meeting of the Committee held at Chicago in November, 1922, the replies to these letters were presented in condensed form and the possibilities of basing a *Yearbook* upon the material available were discussed. It was agreed that a *Yearbook* that would do justice to the situation could not be prepared before February, 1924. It was further agreed that the tentative outline for this *Yearbook* should be laid before the members of the Society in printed form in February, 1923, so that every member should be stimulated to co-operate with the Committee by reporting to it work now in progress in any schools that should be communicated to the Committee, or described in more or less detail in the *Yearbook*.

The following is the tentative outline:

PART I

I. Historical Statement: the development of the idea of special treatment for the gifted in public schools
II. Methods of Selection
  1. Intelligence Tests
    (a) Group vs. Individual Tests
    (b) Definition of the limits of giftedness
    (c) The specially gifted child vs. those with high I.Q.'s only
  2. Achievement Tests
    (a) The high I.Q. and poor scholarship
  3. Physiological age and mental precocity
  4. Teachers' estimates
III. Problems of Organization
  1. Special instruction with no rearrangement of pupils, *e.g.*, unassigned teacher, elastic assignment, etc.

2. Individual acceleration (grade skipping) with or without special instruction
    - (a) Advantages
    - (b) Disadvantages
    - (c) Grades in which it is most feasible
3. Segregation or sectioning
    - (a) Size of classes or sections
    - (b) Number of sections
    - (c) Grades in which it is most feasible
4. Methods of marking gifted pupils; plans for additional credit for high-grade work, etc.
5. Housing and equipment
6. Teachers
    - (a) Qualifications
    - (b) Selection
    - (c) Desirability of continuing with class
7. Cost of special instruction
8. Type of organization as related to size and location of schools
9. Typical objections and how to meet them
10. Degree of publicity desirable
11. Nomenclature

IV. Problems of Curriculum and Instruction

1. Acceleration vs. enrichment
2. Acceleration
    - (a) Advantages
    - (b) Disadvantages
    - (c) Grades in which it is most feasible
    - (d) Subject matter that is omitted
3. Enrichment (definition of minimal essentials)
    - (a) Anticipatory enrichment, or acceleration by subjects (preparatory centers)
    - (b) Intensive enrichment, or extended work in the same subjects
    - (c) Extra-curricular enrichment
    - (d) Manual-arts enrichment
4. Individual instruction
5. The elastic assignment

V. Personal and Social Aspects

1. Home conditions
2. Social adaptation and the development of leadership
3. Character traits and their development (laziness, initiative, interests, etc.)
4. The proper attitude of pupils in a class for the gifted: avoidance of snobbishness, development of initiative, etc.

PART II

I. Case studies of gifted children
II. Description of methods and plans used in various systems
III. Special intensive studies of different aspects of the fields
Reports of experiments
IV. Bibliography

It is proposed to devote most space to Section IV, Part II (Problems of Curriculum and Instruction) and especially to present programs of study that will show in detail what changes are made in content and method in actual classroom work. The Committee has encountered an insistent demand for help in this direction and on this account welcomes information concerning details and alterations in courses of study that have been found desirable in teaching gifted children. The Committee is equally anxious to hear of instances in which the acceleration or the segregation of gifted children has been felt to be undesirable or in which special treatment for the gifted has been tried but discontinued. It would like also to include some account of what first-class private schools are doing for gifted children.

Professor Freeman will be glad to correspond with those who are in a position to undertake experimental studies in this field or who are willing to report the results of experiments they have already made. Among the investigations suggested are: Experimental or statistical studies of the effect on pupils' work of acceleration or of homogeneous grouping, *e.g.*, a study of grade skipping, of segregation with and without modification of the curriculum; 'follow-up' studies of gifted pupils; measurement of the relative progress of segregated and unsegregated classes; studies of the effect of segregation on the achievement quotient of bright pupils; studies of the cost of segregation, etc.

You are urged to communicate promptly to the Chairman or to the Secretary of the Committee any information you may have that should be of value or any criticisms or suggestions you may have of the tentative outline. We want to make this *Yearbook* a truly co-operative affair.

Bird T. Baldwin, Iowa Child Welfare Research Station, Iowa City, Iowa
Helen Davis, Board of Education, Jackson, Michigan, *Secretary*
Lillie R. Ernst, Board of Education, St. Louis, Missouri
Frank N. Freeman, University of Chicago, Chicago, Illinois
Ernest Horn, State University of Iowa, Iowa City, Iowa
Harold O. Rugg, Lincoln School of Teachers College, New York City
Leon O. Smith, Assistant Superintendent of Schools, Omaha, Nebraska
Lewis M. Terman, Leland Stanford University, California
Guy M. Whipple, University of Michigan, Ann Arbor, Michigan, *Chairman*

The present *Yearbook* will indicate what the Committee has been able to accomplish of the program thus laid out. Particular difficulty has been encountered in gathering information concerning adaptations of the curriculum and of methods of instruction for gifted pupils. This difficulty interfered especially with the plans of Dr. Horn (to whom the appointment of the original Committee and much of the planning of its work should be credited) for contributing an extended discussion of this topic in the field of elementary education, and with those of Dr. Rugg for contributing a similar discussion in the field of secondary education. These two chapters have had, perforce, to be limited in the main to an expression of the opinions and practices of a few individuals.

Similarly, the reader will note much individuality in all the reports. The several members of the Committee are not in complete agreement in their evaluation of the various methods outlined in the *Yearbook* for the selection of gifted pupils or for the administration of their training. After extended discussions of many of these matters in its meetings, the Committee agreed that the desideratum on which all its members *are* agreed—better provision for gifted pupils in the public schools—would best be furthered if each member were to set forth the situation as he saw it. Mark Twain, I believe, once remarked: "Differences of opinion must be good things, because they made horse-races possible." If this *Yearbook* operates, similarily, to instigate the proponents of different methods of handling gifted children to prove their case, it will, we are sure, justify the labors of the Committee.

The personnel of the Committee has undergone certain changes since the Report of Progress already quoted. Miss Ernst resigned on account of changes in the scope of her professional labors at St. Louis. Dr. Waddle and Dr. Henry have been added and have contributed materially to the results of our work, as the *Yearbook* itself will attest.

CHAPTER II

METHODS OF SELECTING SUPERIOR OR GIFTED CHILDREN[1]

Bird T. Baldwin
Director of the Iowa Child Welfare Research Station, Iowa City, Iowa

Introduction

When the writer began teaching school in Pennsylvania, at the age of seventeen, he was told by the county superintendent that the criterion for promotion was to be the pupil's accomplishment in Brooks' *Arithmetics*. This was supposed to be a step in advance over the grading by Appleton's series of six readers, which had been in vogue for many years in these rural schools. In 1910, Ayres' *Laggards in Our Schools* made chronological age the criterion for school promotion. It has been a short time since the writer observed a group of first-grade children—several of whom had high I. Q.'s—fail at the end of a school term in a year's promotion because they were unable to make a posited score in Monroe's Silent Reading Test. In reply to a recent inquiry in regard to methods of selecting gifted children for school acceleration, a state superintendent of public instruction replied: "All children in our state are promoted on intelligence tests." This immediately evokes the question: "What kinds of tests and who gives them?"

Can we afford to rely, at the present advanced stage and development of our science, on any one of the above criteria, or on any single test in the hands of an average teacher, as a basis for diagnosing and evaluating a cross section in the entire school life of a child? It must be remembered that the tests, scales, or judgments are but single shafts sunk into the very complex nature of a developing child, and that these devices used, perhaps only annually, may be very misleading and misrepresentative of the rich soil or deposits which they are supposed to essay.

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[1] In this chapter "gifted" and "superior" are considered almost synonymous terms.

Educators are just beginning to appreciate the fact that the selection of gifted and superior children for school advancement is a very intricate scientific problem. It is the purpose of this paper to outline, from the practical educational point of view, methods of analyzing the problem and to formulate scientific principles on which a practical and rational system of selecting superior children for school instruction and school promotion may be based. The point of view of the writer is that of an educational psychologist and experimental scientist whose predominant interest is in the child.

I. CONTEMPORARY METHODS OF SELECTING SUPERIOR OR GIFTED CHILDREN

It is not possible to get a complete survey of the present methods of selecting gifted children for special classes or for school acceleration by other methods. The results briefly outlined in this section are from 68 school systems in various parts of the United States and are gleaned from special letters written to Dr. Whipple, from printed reports, and from magazine articles. No doubt other school systems are making similar selections. It is probable that criteria other than those mentioned are being used. It is also true that in many of the reports for a particular school system, the methods outlined refer to one or two particular grades or to one or two particular schools within the system, and not to the system as a whole.

The methods in vogue may be summarized in tabulated form if allowances are made for the existence of one or more methods in a particular school system.

A. Methods of Selection

1. Intelligence examinations, 56 cases
    - a. Group tests, 22
    - b. Individual tests, 7
    - c. Individual and group, 9
    - d. Individual or group (not stated) 18
2. Teacher's recommendation, 28
3. Scholastic standing, 25

   a. Standard tests, 13
   b. School marks, 11
   c. Special examination, 1
4. "Probation," 4
5. Health, 5
6. Chronological age, 3
7. School history and pedagogical age, 2
8. Social development, 1
9. Effort and "concentration," 3
10. Parents' permission or advice, 1
11. "Demonstrated ability," 6

B. Number of Schools Using One or More Methods

1. One method only, 31
2. Two methods, 17
3. Three methods, 13
4. Four methods, 4
5. Five methods, 1
6. Six methods, 1
7. Seven methods, 1

Criteria Included in the Use of Two Methods

Scholastic standing and psychological tests, 4
Teachers' recommendation and psychological tests, 12
Teachers' recommendation and educational tests, 1

Criteria Included in the Use of Three Methods

Scholastic standing, psychological tests, and teachers' recommendation, 6
Psychological test, probation, and teachers' recommendation, 2
Psychological test, scholastic standing, and probation, 1
Psychological test, teachers' recommendation, and demonstrated ability, 2
Standard educational tests and psychological tests in respect to chronological age, 1
Demonstrated ability, chronological age, and psychological tests, 1

Criteria Included in the Use of Four Methods

Recommendation, probation, scholastic standing, and psychological tests, 1
Recommendation, scholastic standing, psychological tests, and health, 1
School marks, standard educational tests, psychological tests, and health, 1

School marks, psychological tests, health, and effort, 1

Three other systems list additional combinations of the methods outlined **above.**

As a result of a questionary addressed in 1920 to the cities of 25,000 population or more, Freeman[2] found in 68 replies from elementary schools where provisions were said to be made for gifted children, 35 cases in which the selection was determined by "teachers' judgments," and 32 in which "tests and school marks" were used, the types of tests not being specified. Hughes' questionary to 221 high schools showed that 24 percent endeavored to classify "by ability," 14 percent made "partial provisions," and less than 7 percent used mental tests for selection. In 1922, Oman made inquiry of 50 junior and senior high schools in 23 states and found that 72 percent were using "intelligence ratings" to select the pupils for "speeding up."

These data show that (1) *the schools of the country at large have hardly made a beginning in their provisions for gifted children;* (2) *there is little or no uniformity as to methods of selecting gifted children for school work;* (3) *there is no concensus of opinion as to the age or grade in which differentiation of work should take place;* (4) *no provision is made for sex differences;* and (5) *in fact, very few school systems do make provision for gifted children in every school and grade.*

A classification of the disposition of children within the school system, after their selection, shows that there has been little conscious recognition of the differences which should govern the purposes of the selection. In a majority of cases cited, the children are selected for an advance in school grade, *i.e.*, acceleration up the scale, usually by skipping a grade or by rapid advancement through a grade. In some cases the selection is for segregation into special classes or special schools; for transfer within the grade to an advanced division; for "supplementary and excursion" work; for an "enriched course of study"; for more intense work in the same subject; for "more drill"; and in one instance for "opportunity farm work." The methods of selecting qualified teachers for gifted

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[2] For specific references to the studies quoted see the bibliography in Section III of the *Yearbook.*

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children, if such methods exist, have been overlooked or ignored in the reports.

While these letters and reports indicate, from an administrative point of view, an almost chaotic condition in regard to adequate or uniform methods of selecting gifted children and a wide divergence as to methods of training gifted children, they do show that *an increasing number of technically trained educators throughout the country are aware of the great significance of the problem and are making valuable contributions toward dealing with the problem in an effective manner, as the subsequent chapters and the bibliography show.*

II. Principles Governing Selection

The fundamental principles governing the selection of superior or gifted children are determined by the purposes for which the selection is made, as just outlined above. These aims or purposes are dependent on the type of child (treated later) and on the type of organization in the school system (cf. Chs. III and IV of this *Yearbook*), on the curriculum and methods of instruction in the schools (Chs V and VI of this *Yearbook*), and on the personal and social environment of the child, the home, and the school (Chapter VII of this *Yearbook*). Since it is not possible for the writer to anticipate these later chapters, the methods outlined in this chapter are his contribution, which differs essentially from the current opinions of writers on gifted children.

If gifted, talented, or superior children are to be recognized in school training, the conception of education must be broadened. There is no doubt that schools tend to become inbred. They have too often valued highest the things which they require to be taught; they have arbitrarily rated abstract thinking above concrete thinking; they have praised the ability to use words to the exclusion of the ability to manipulate things or people; they have emphasized isolation more than co-operation; they have been satisfied with the acquisition of knowledge of tools rather than the actual use of the tools; and they have provided opportunities to acquire knowledge and offered few occasions to 'make knowledge' in the pragmatic sense.

The modern school must be centered around children and not around curricula, plans of administration, or school buildings, when these lead to the neglect of children's development. The child is the center of reference for all school work and the gifted child should receive special consideration.

A. The Limitations of Contemporary Methods of Selecting Gifted Children

1. *Mental Tests*

That mental tests should form an integral part of a practical method of selecting superior children should be emphasized.[3] On the other hand, mental tests are very frequently misused at present. There is a strong wave of enthusiasm for mental tests sweeping the country, which is resulting in the promotion of pupils—especially superior children—on I. Q.'s alone. This assumes that an individual measuring scale or a group test evaluates the psychological development of the child, while in reality practically all of these scales or tests represent a rather narrow cross section of the child's mental make-up. Few of them even attempt to measure intelligence alone, if we accept Stern's rather broad definition of intelligence—"*General intelligence is the ability of the organism to adjust itself adequately to new situations.*"

The intelligence tests are relatively gross, blanket estimates or averages of specific groups of mental abilities. They take into consideration few distinctions of the relative values of the special traits to the specific individual under examination. Little or no recognition is taken of the child's emotional development and emotional drive, of the will to succeed in school work, the initiative to create, the ability to lead, or the willingness to co-operate with others. No recognition is made of the relative value of brightness and cleverness, and of accuracy and persistence of the slow, intensive type of thinking, frequently necessary for good work. In the tests, linguistic ability may count for more than creative thought. The results of a single scale may not give a true picture of the increment of mental growth. Allowance is not made for the influence of racial and environmental backgrounds, physiological age,[4] or for sex differences. All of the tests, as far as the writer can learn, fail to differentiate the stages of mental maturity and brightness—two quite different factors in mental growth. (A few years ago we were told that a feeble-minded child of 21 years of age, with a mental age of seven, had "the same mind as a normal child of a chronological and mental age of seven," but those of us who work with both classes of children know that this cannot be the case.) As indicators of the mental ability of individual pupils, the group tests are even more limited than the individual tests.[5] *It is apparent, however, that we have reached a stage in child measurement where we need more mental measures rather than the substitution of one or two mental tests for a complete psychological examination.*

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[3] For a detailed discussion of the nature, history, and general principles of intelligence testing and their administrative use, see the *Twenty-first Yearbook* of this Society.

2. *Teachers' Judgments*

In the majority of school systems the principal criterion, in fact in many schools the only criterion, for finding superior children is the teacher's judgment. In some instances this judgment is a rationalized process based on an intimate appreciation of the child's development and an understanding of the function of the modern school. In many instances it is the reflected bias of an ambitious parent or principal, or a narrow conception of the function of the school, or a meager knowledge of the relative values of the findings of special examiners and special teachers, or occasionally a desire to get rid of an idle, and therefore mischievous child through the means of 'passing it on' to the next grade.

An analysis indicates that the teacher's judgment may be based on (1) *previous ground covered;* (2) *the preparation to do next year's work;* or (3) *the ability to do next year's work.* If one, or all of these factors are included, the fact should be definitely indicated. The teacher's judgment may, on the other hand, be determined by a *single aspect of growth,* such as mental test, educational test, age, or some of the many other phases of development or training. If so, the judgment should specify this fact in order that the results may be checked or the methods made uniform. *The judgment may be modified by the teacher's attitude toward the child and toward the grade as a whole.*

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[4] Baldwin, B. T. *Physical Growth and School Progress.* U. S. Bureau of Education, No. 10, 1914. Pp. 215. See esp. p. 97.

[5] Baldwin, B. T. *Studies in Experimental Education.* Johns Hopkins University Studies in Education, No. 3, Chapter I, 1920.

It has been shown in many schools that in using teachers' judgments as a single criterion, as many superior children may be overlooked as are included. There should be three judgments, when possible, since the reliability is greater. These may be those of the teacher, the principal, and another special teacher intimately associated with the child. *Teachers' judgments may be the most valuable factor in school promotion of the gifted children when these judgments are based on objective scientific criteria, supplemented by other methods of selection from the measurements of the physical, mental, educational, and social development of the child by specialists in these fields.*

Psychologists are not trying to eliminate teachers' judgments. On the other hand, they are trying to use teachers' judgments where they are most valuable and to show teachers that there are many phases of development which can be accurately measured and evaluated independently of any one person's, or group of persons', observations. Not all phases of child development are subject to quantitative measurement. It would be very unfortunate as well as unscientific to assume that they are. Chief among these characteristics less subject to measurement are the personality traits, such as mental attitude, originality, and effort. *To attempt to select superior children for special school training without the use of teachers' judgments would be to mechanize education and pupil; to base selection on teachers' judgments alone would mean neglecting many years of scientific advancement in education and psychology.*

3. *Educational Achievement Tests*

During the last two decades scores of educational measuring scales have been printed and distributed throughout this country. These scales indicate a decided step forward toward measuring the achievement of pupils. Many of the scales are very valuable in

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school work and should be used freely when properly orientated in connection with other criteria for checking attainment. The newer tests combine from two to eight or ten subjects in one scale. Of the 300 or more scales now available, a very large number are either obsolete in their points of view or represent uncrystallized thought.

In selecting pupils for school advancement, the standardized educational achievement tests give direct aid and at the same time offer a tangible means of comparing the pupil's accomplishment with that of other pupils within the school and from other schools or other school systems by means of standardized scores or educational quotients.

B. Original Endowment vs. Accomplishment as Criteria of Selection

Many schools are using accomplishment tests as the chief or sole criteria for selecting (advancing) superior pupils. This is leading to a marked confusion between the problems of *native endowment* and *school achievement*. These two aspects of growth must be differentiated for analysis; they are not the same thing and at the present time a scale in one of these fields cannot be substituted for a scale in the other. As a general rule, intelligence tests aim to measure native endowment, while educational tests aim to measure achievement in school subjects. A few of the group scales aim to combine a measure of endowment with one of achievement.

Since many intelligence tests and many educational scales are now available for teachers and school principals, an effort is being made to rate one phase of a child's development in terms of the other, *i. e.*, by means of an achievement quotient (A. Q.). In the field of intellectual development, the mental age divided by the chronological age gives the intelligence quotient (I. Q.). In the educational field, the educational age for a particular subject, or group of subjects, divided by the chronological age, gives the educational quotient (E. Q.). The ratio of educational age to the mental age, or the ratio of the E. Q. to the I. Q., gives the accomplishment quotient (A. Q.). This is a measure of the child's school achievement in terms of his native endowment.

The *accomplishment, or achievement, quotient,* in the minds of a number of educators, furnishes the best means of selecting gifted pupils. Such a quotient undoubtedly is a step forward, but it is a serious assumption to take for granted that the achievement in one educational scale or the various scales should be identical with the score in another entirely different series of intelligence tests constructed by another group of workers and for a different purpose. The two scales may measure few, many, or no identical traits. The achievement quotient (A. Q.) sets one more or less arbitrary scale against another more or less arbitrary scale and if they do not agree, the child may be wrongly held responsible for the disagreement—not the scale. It must also be recognized that there are many factors, such as health, training, attitude, and application, which may interfere with, or accelerate accomplishment. It has by no means been established that accomplishment should equal endowment. There are individuals who seem to show for short periods, or during their entire life, latent, or even suppressed endowments; while, on the other hand, there are individuals who work to the very margin of their resources. In some cases the latter types apparently exceed in native endowment or in achievement by using the ideas or activities of others. There is also the problem of the unevenness of development in mental traits and abilities.

Achievement quotients, like intelligence scales, do not take into consideration the maturity factor, which varies with differences in physiological and social development of pupils of the same chronological age. A low achievement quotient assumes lack of application on the child's part, which may be frequently, but by no means always, the case.

The limitations of the other contemporary criteria listed earlier in this article, such as health, "probation," chronological age, school history, social development, effort, parents' permission, and demonstrated ability, need not be discussed in detail at this point; they are treated in the proposed constructive plan for selecting children outlined further on. The fact that not more than 6 of the 68 schools used any of these criteria shows that they are being neglected. The fact that only one school representative mentioned 'social age' and none mentioned 'physiological age' clearly demon-

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strates that the child as a unit is not being considered in the selection of gifted children for school work. In addition to the above, one should take into account the fortuitous educational factors such as home environment, social status, and similar influences (cf. the chapter by Miss Davis in this *Yearbook*).

III. Basic Principles of Child Development

A study of the best school systems, public and private, will show that there is no scientific evidence that superior children of the same chronological age should be in the same school grade. An analysis of a grade in any first-class school will yield evidence of considerable over-lapping in chronological ages within a grade. According to the writer's conception of grading schools, there is no justification for classifying in the same grade all children of the same chronological age with high I. Q.'s. This point will be elaborated upon later. It is doubtful whether all superior children of the same grade should have the same achievement scores in the same subjects, since gifted children frequently do better in some subjects than in others. *This condition—the over-lapping of abilities and traits—makes the administrative problem of advancing gifted or superior children much more complicated than educators have assumed. The problem is primarily one in* (1) *child psychology,* (2) *methods of teaching, and* (3) *the curriculum, and not one of uniformity in grading on a single chronological age or test basis.*

IV. The Normal Standard Child vs. The Superior or Gifted Child

In the literature on gifted children, it has been almost universally assumed that the child with a specially well developed mental trait or group of traits, regardless of the development of other traits, should be rated "gifted" or "superior." This concept is too narrow from the point of view of mental testing and entirely inadequate from the point of view of child development, if gifted children are those of superior intelligence according to the definition of Stern previously quoted. The term "gifted" should always be qualified by such words as *mentally*, *aesthetically*, and *physically*.

What is a normal standard child? For scientific purposes different phases of a child's development may be treated more or less independently for analysis and description, and later synthesized into a unity. In the past, scientists have tried to describe an "average child" at a given chronological age, without realizing that in so doing the wide individual differences which exist among children destroy or compensate each other. No such child exists. A new approach must be formulated which will preserve the integrity of the individual, differentiate specific traits, and also offer opportunity for a series of norms, or standards, in different aspects of growth.

For purposes of scientific analysis and explanation, the writer takes into consideration for every child, five parallel and interrelated ages: (1) a *chronological age* in years, months, and days, denotive of the temporal span of life—this is an arbitrary age and its importance has been greatly overestimated in educational work; (2) a *physiological age* denotive of the stages of physical growth and stages of physical maturity—this is the basic age; (3) a *mental age* denotive of the growth of certain mental traits, capacities, interests, and abilities; (4) a *social age or religious age* (the two may be combined for the purposes of this paper) denotive of the growth of social attitudes and the ability to make, adapt, and control social adjustments; (5) a *composite educational age* denotive of the rate and position in school progress. These five ages are all present at any chronological age of a child's development. A child may have reached its maximum in one or more of the four ages, excluding the chronological, yet be retarded in the others. For example, a boy or girl may have normal physical development and be retarded educationally, socially, or morally; or any of the other combinations may occur. He or she may be potentially normal with remediable physical and mental defects or disabilities which cause temporary or permanent retardation. Fairly accurate methods of measuring exist for the second, third, and fifth ages, and the approaches to the fourth are steadily being standardized. *In a normal standard child, each age is developing at a maximal rate of growth* *with the physiological, mental, social, moral, and educational ages balancing each other.*

What is a superior or gifted child? There is no definite line of demarcation, according to the writer's views, between a *normal standard child* and a *superior child.* For practical purposes the difference is one of degree of development and not quality. The *normal standard child* is not an average child, but is one of normal, all-round development, physically, mentally, socially, morally, and educationally. The superior children are in the upper percentiles for the distribution of normal standard children. *Probably the best means of classification would be to designate all children of "rounded," accelerated development as "superior," and those of special development as "gifted," or "talented," in a special phase of development*—for example, superior in development, gifted in intelligence, talented in music.

The present-day concept of the term *superior child* should be enlarged to include a more uniform development, which takes into consideration the unity of the child's personality. The concept should include the physical, mental, social, moral, and educational ages of the child, in addition to the relative development of special gifts or abilities in any one of these.

V. A Proposed Plan for Selection

A. The Minimal Essentials for Finding Superior or Gifted Pupils in School

When selecting superior or gifted children for school advancement or for the enrichment of their courses, four tests or lines of tests should be given:[6] (1) physical growth and physiological age;

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[6] As a practical preliminary step for locating possible children of superior ability, a group intelligence test may be given; the teacher may be asked to name her brightest pupils; the school marks may be compared; or frequently the youngest children may be selected.

In a large school system general directions may be necessary to the school principals in regard to double promotions or rapid acceleration. These suggestions should refer to such problems as (a) numerical limitations—for example, not more than 10 percent of a class; (b) the final mark—for example, 90 percent and over; (c) physical condition of the child; (d) maturity factors; (e) growth; (f) wishes of parents; (g) the desire of a pupil to remain in a particular school, rather than to go to a segregated school or to another school at a long distance.

(2) intelligence tests and general mental development; (3) educational tests, achievement and scholastic accomplishment; (4) teachers' judgments and ratings.

The results of these tests should be interpreted in the light of the children's social age and chronological age when those in the group are markedly different in these respects.

1. *Methods of Measuring Physiological Age*

From the writer's data based on five to twelve years' consecutive measurements and observations on the same children, it has been shown that children of the same chronological age may differ in stages of physiological development.[7] The physiological age of superior children has not been recognized or taken into consideration. Unfortunately, many of our leading psychologists are still using chronological age and physical age as synonymous terms. Some of the methods of determining the physiological age are:

1. *Stature.*[8] A study of several thousand individual growth curves based upon repeated measurements of the same children shows that as a rule tall children remain tall, and that short children remain short, although there are exceptions. Tall, large children reach their final stature earlier than short children. They are accelerated physiologically, *i. e.*, tall children are physiologically older than short children. Girls reach their period of final stature earlier than boys.

2. *Maturity.* Tall children mature earlier than short children. Girls are older, as a rule, physiologically speaking, at any chronological age than boys. The onset of adolescent growth and stages of physical maturation appear earlier for girls. For several hundred girls, the range of distribution for the period of first menstruation has been found to be from 10 to 17 years of age. Tall girls of the same nationality and the same social levels and relatively the

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[7] Baldwin, B. T. *The Physical Growth of Children From Birth to Maturity.* Iowa Child Welfare Studies, No. 1, 1921. Pp. 412. See esp. Ch. VII.

[8] Consult the Baldwin-Wood weight-height-age tables for American-born children. Printed by the Iowa Child Welfare Research Station, University of Iowa, 1923.

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same environment mature earlier than short girls. The range for the period of the onset of pubescence in boys is from 11 to 17 years of age. Tall boys, like tall girls, are accelerated physiologically.

3. *Anatomical development.* Repeated X-ray photographs of the surface area of carpal bones in the wrists of boys and girls show that girls, as a rule, are older anatomically than boys, and that there is a high correlation of the development of carpal bones (both as to number and size) with growth in stature and with other criteria of maturity.

2. *Methods of Measuring Mental Age*

The individual and group methods of measuring intelligence are too well known or sufficiently accessible to warrant a detailed description here. For a very thorough and adequate account of the construction and use of intelligence tests, see Chapter II by Colvin, in the 1923 *Yearbook.* Whenever possible, "performance tests" should be included in the series, and all tests should be supplemented by an analysis of the emotional and aesthetic development by a psychologist, and by character sketches by teachers and principals. In the selection of gifted or superior children, all should be given individual tests, or in case this is impossible, group intelligence tests may serve for an intelligence rating which is only one aspect of mental age.

3. *The Relation Between Mental and Physical Growth*

In an earlier monograph,[9] the writer stated that if pedagogical age be accepted as a fair equivalent to mental development, tall, heavy boys and girls with good lung capacity are older physiologically and further along in their stages toward mental maturity, as evidenced by school progress, than short, light boys and girls. This conclusion is based on 21,682 final term grades and 5,000 physical measurements on 125 boys and girls from the Horace Mann School at Teachers College, Columbia University, and the Francis Parker School in Chicago, for a period of 5 to 10 years for each child.

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[9] See footnote 4.

In a report of observations in the Johns Hopkins Demonstration School[10] composed primarily of misfit pupils of retarded or average ability, the coefficient of correlation between height and intelligence rating for groups of boys and groups of girls ranging between 6 and 14 years was +.71 and +.72, respectively.

In our study[11] of mental and physical growth curves on a group of normal and superior children measured by the Stanford-Binet scale over a period of years, we found the mean "mental age" (intelligence age) of children above the average in standing height (physiologically accelerated pupils) higher than the mean "mental age" of the average children. The range of I. Q.'s of this group extended from 88 to 160, with a mean I. Q. of about 120. The heights and other physical traits of these children represent a fairly uniform type of frequency distribution with a majority of the superior children in the upper half when compared with the average group. The coefficient of correlation between "mental age" and some aspects of physical development for the children between five and fourteen years of age was +.89 for height and +.71 for weight. For height and mental age with age constant, as shown by partial correlations, the coefficient was +.53.

A comparison of the mean heights and weights for 623 gifted California children with I. Q.'s of 140 and upward, selected by Dr. Terman, shows this group to be considerably taller and heavier at each age for each sex than the Oakland, California, children listed by Barnes in 1892. These superior children are also above the averages of the writer's results for similar groups at Iowa City and Davenport, Iowa; Oak Park, Illinois; and Cleveland, Ohio. When compared with the writer's standards for American-born children, as given in the Baldwin-Wood tables, they are at the standard or slightly above, particularly in weight.

These studies show that, as a general rule, good mental development accompanies good physical growth during childhood.

In our Pre-School Psychological Laboratory, which 60 normal and superior children between the chronological ages of two and five and one-half years attend daily, we have classified the three groups primarily on the basis of physiological age and stages of mental and social maturity, as indicated by a series of tests and observations. For example, the range of heights for the lowest group of children is between 34 and 39 inches; for the second group of children, between 39 and 44 inches; and for the highest group of children, between 41 and 45 inches. The boys are relatively taller than the girls, and the X-rays of the carpal bones show similar stages of anatomical development for the children within a group. The teacher provides more projects and more opportunities of expression for the children of superior mental ability, as measured by intelligence tests, within a group. During play time, the physiological groups tend to form social groups, ignoring differences in chronological age.

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[10] See footnote 5.

[11] Baldwin, B. T. "The relation between mental and physical growth." *J. Educ. Psychol.*, 1923, 193-203. Also Baldwin, B. T., and Stecher, L. I. *The Mental Growth Curves of Normal and Superior Children.* Iowa Studies in Child Welfare, Vol. II, 1922. Pp. 58.

4. *Methods of Measuring Social Age*

A few good scales for measuring the social development of children are beginning to appear in the literature, although sociologists have, as a general rule, neglected first-hand studies of children. In the writer's experimental work special studies are being made of the social attitudes of pre-school children by means of consecutive observations and rating scales.

5. *Methods of Measuring Educational Age*

These methods have been discussed extensively in the *Seventeenth Yearbook*, Part II, and elsewhere.[12]

B. Types of Children That Should be Recognized in Any Plan of Acceleration

When individual or group methods of selecting superior or gifted children are used, the following five differences in types of children should be taken into consideration as far as opportunities and facilities permit; it is recognized that in practice it may be necessary frequently to make one or more of these predominating characteristics the sole basis on which the disposition of the child may rest.

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[12] See, for example: McCall, W. A. *How to Measure in Education*, New York, 1922; Monroe, W. S. *Measuring the Results of Teaching*, Boston, 1918; Monroe, W. S. *An Introduction to the Theory of Educational Measurements*, Boston, 1923.

1. *Differences in Chronological Age*

Chronological age differences are almost negligible if the other age differences are thoroughly taken into account.

2. *Differences in Physiological Age*

The principal differences to be kept in mind here in addition to *sex differences,* are the differences (a) between pupils of *mature development* and pupils of *relatively immature development;* (b) between pupils who are *well nourished* and pupils who are *malnourished;* (c) between pupils with *high physical achievements* and pupils of relatively *low physical accomplishments;* and (d) between pupils of *normal physical development* and pupils with *physical defects* or *handicaps.*

3. *Differences in Mental Age*

The mental differences among superior or gifted children are more difficult to note than the physiological, but nevertheless just as important. Some of the main mental and sex differences that should influence promotion or acceleration within a grade are (a) between pupils *mentally accelerated, as shown by verbal intelligence tests and pupils shown to be accelerated by means of performance tests;* (b) between pupils of *general superiority* (with or without special abilities or talents) and pupils of *average or mediocre intelligence* with special abilities or talents; (c) between pupils with *healthy mental development* and those with *special mental defects* or mental complexes of egotism, inferiority, race prejudice, emotional conflicts, and the like; (d) between *pupils with stable emotional reactions* and *pupils with unstable reactions;* (e) between *pupils who can manipulate ideas* and *pupils who can manipulate things;* (f) between *pupils with marked accomplishment reactions* and *pupils unable to function according to their endowments;* (g) between *pupils with quick glib reactions* and *pupils with slow intensive reactions,* either of whom may be *accurate* or *inaccurate;* and (h) between

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pupils who may be classified as of the *gifted, or superior, type* and pupils who should be rated as of the *'prodigy'* or *'genius'* type.

4. *Differences in Social Age*

In evaluating the social development the main differences to recognize in addition to sex differences are (a) between the *socially mature* and the *socially immature;* (b) between the *socially active* and the *non-social types;* (c) between those who can *manage or lead others* and those who *lack this ability;*. [illegible] between the *co-operative* and the *non-co-operative.*

5. *Differences in Educational Age*

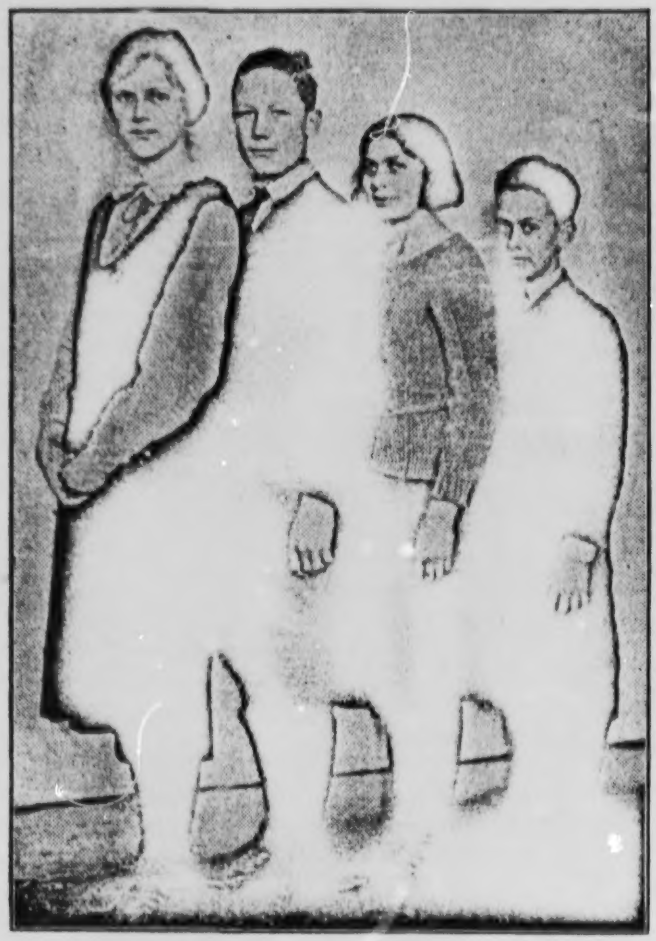
In the consideration of educational age, aside from sex differences, which should be recognized but usually are not, the main differences are: (a) between those who are *scholastically prepared* and those who are *mentally qualified;* (b) between those with *general educational abilities* and those with *special abilities;* (c) between those of *mature educational outlook* and *attitude* and those who are *immature;* (d) between those who are *educational followers* and those who may be classed as *non-conformists.*

The accompanying cut illustrates several different types of superior or gifted children for whom educational adjustments must be made on the basis of the principles formulated in this chapter.

1. The four pupils are of the same chronological age, within a few months (13 years old).

2. In physiological age they differ at least 4 chronological years, as is shown by their height and general growth, development of the carpal bones, and adolescent stages of maturity. The taller girl is 6.3 inches above height for her age and sex, and the smaller boy 0.8 of an inch below the average for his sex and age. The smaller boy is prepubescent; the taller girl matured at 11 years of age. The taller girl has completed her adolescent acceleration in growth in stature, and the smaller boy has not started his accelerated period.

3. All are above 130 I.Q., the difference in performance on this scale being probably correlated with the maturity factor.



These four children are of the same chronological age, but they differ in physiological, social, and educational ages.

4. In social age or stages of social maturity, as shown by social attitudes and participation in school and extra-curricular activities and in clubs and parties, the differences are as marked as the differences in physiological age.

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5. In educational accomplishment, as measured by subject matter, the range is three years. The smaller boy is in the 9th grade with much supplementary work including manual training, the construction of radio sets, the collection of stamps, a large amount of reading, and art work; the larger boy is in the 9th grade with extra subjects; the smaller girl is in the 10th grade with some supplementary work and musical training; and the larger girl is in the 11th grade with "A" work in all subjects, but little or no supplementary work. In educational tests the range is smaller.

C. The Basic Method of Selection for Grade or Group Enrichment or Acceleration

The problem of advancing the superior child in school work is not so simple as has been assumed. While it may be possible in many instances to deal with relatively large groups of superior children in a class, it must not be forgotten that the variability of these children is greater than that of average or retarded children. On the other hand, relatively accurate methods of prediction in physical and mental growth are now available.[13]

A few general principles may be laid down.

1. *Acceleration upwards through the school grades, by utilizing the methods already outlined, should be the principal way of advancing superior or gifted children who are physiologically accelerated (those children who are relatively large for their age, sex, race, and social status). This is particularly advisable for those children who are mentally and socially mature for their chronological age. These children may safely be accelerated two, three, or more grades if thoroughness and accomplishment are also considered These children will complete the course at an early chronological age with superior knowledge and training on account of their superior ability and advanced stages of maturity.*

2. *For superior or gifted children who are not especially advanced in physiological age, but of different I.Q.'s, the acceleration should be accomplished in a horizontal direction, by means of some type of grade sectioning on the basis of I.Q. For some of these pupils acceleration should be by means of an X, Y, Z division*

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[13] Baldwin, B. T. "The scientific prediction of the physical growth of children." Reprinted from *Eugenics in Race and State*, Vol. II, 1923.

within the grade, while for others additional subjects should be provided, elective courses in special fields, special training in physical education or other forms of supplementary work and excursions—the latter especially where the home environment is limited or where the pupil tends to be of a 'narrow gauge' type, mentally and socially. These children will complete an enriched school course at the average age.

For those superior or gifted pupils of really exceptional ability at any maturity level, the enrichment should mean an opportunity at their maturity level for further investigation or participation (*research*) into a subject or activity with the burden of the methods and results of the investigation or participation resting on the pupil and the burden of the suggestions for facilities resting on the teacher. These children may complete the school course at approximately the average chronological age, earlier or later, but with greatly enriched information, enriched attitudes, and enriched training in methods of approaching problems or taking part in school activities when compared with the average pupils.

3. *For the glib, clever, bright children of the superficial type, training in accuracy and thoroughness should be the principal objective in all of the grades and all of the groups through means of utilizing their predominant interests. These children are the most difficult to train in school, and they frequently dissipate their energies and those of others after they leave school.*

4. *For the genius or prodigy, who is very rare, a more specialized psycho-educational study must be made.*

Gifted or superior children may be *forced in school* to unusual accomplishment in any of the methods outlined above, regardless of their welfare. *Any flexible modern school system should be able to adapt its administration and instruction to these three fundamental methods of selecting and training superior or gifted children.*

VI. THE IOWA-CLEVELAND INDIVIDUAL SCALE FOR MEASURING THE DEVELOPMENT OF NORMAL AND SUPERIOR CHILDREN FOR ACCELERATION IN ELEMENTARY AND HIGH SCHOOLS

The *Iowa-Cleveland Scale* for selecting normal and superior children for school promotion and advancement has been designed

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by the writer.[14] This scale provides for the successive recording of *physiological age* in terms of physical condition, dental condition, nutritional condition, physical growth, physiological maturity, physical achievements, and environmental influence. The *mental age* is recorded in individual tests, group scores, and maturity ratings. The *social age* is recorded in tests and judgments on basic social traits and attitudes, and in stages of social maturity. The *educational age* is recorded in standard tests, ratings on scales in various subjects, personality traits, and the teacher's final marks and estimates. Supplementary provision is made for recording special abilities.

The scale is provided with a diagrammatic profile which indicates the degree and the uniformity of development of each child.

VII. PROBLEMS FOR FURTHER INVESTIGATION BY TEACHERS

1. Do superior or gifted children learn differently from the normal or dull children? If so, how? Is the difference one of rate or quality? If children do differ in these respects, how should methods of instruction in specific branches differ?

2. Are there differences in quality between dull, normal, and superior children in the special abilities, personality traits, language abilities, motor control, aesthetic appreciation, and leadership?

3. Is intelligence, in the accepted sense of an I.Q., the equivalent of scholarship, or do industry, accuracy, appreciation, methods of work, persistence, and attitude toward the problem at hand play an indispensable part in child development? If so, how may these two aspects of development be combined?

4. Should the selection of gifted children be early in the course in order to awaken new interest and to inculcate correct habits of study or at least avert the development of bad habits of study? Or should the emphasis be placed on the acquisition of the 'fundamentals of instruction' for all children, with later differentiation of the course of study?

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[14] See the *1924 Yearbook of the Department of Superintendence of the N.E.A.* The scale is published by the World Book Company.

CHAPTER III

PROBLEMS OF ORGANIZATION

Whatever may prove to be the explanation of the present status of official thinking on the subject of the varying abilities of children, and the consequent responsibility laid upon school managers as soon as the variability is acknowledged, it is certainly a fact that there is much administrative timidity before the problem of organizing and conditioning practice to meet the newly conceived needs of superior children.

Progressive teachers, students of education, psychologists, and psychiatrists all over the country are increasingly alive to the extent of the waste of unused powers of gifted children under the accustomed procedure of the schools. It is imperative that convictions be spread abroad promptly that the waste is of serious import to the welfare of our society, and that its elimination be recognized as a major duty of school officials and as a legitimate charge against community finances. A survey by questionnaire and invitation "to tell the rest of us what you are doing" elicits evidence enough of the sort of undynamized desire and intention that expresses itself in the Ozark country in the oft-repeated phrase "I 'llow I'm goin' to do it;" and often enough to make optimism valid, discloses well-thought-out plans 'to begin to discover a way' to the solution of at least some of the problems that the situation presents.

The brief reports of experience in the following pages represent fairly well the various kinds of procedure by which schools have attempted to attack this problem from the standpoint of class organization, and while inconclusive in the main, they hold suggestions for school executives to follow or to avoid.

It is probably fair to assume that schools from which there is "no reply" to the Committee's inquiries are doing nothing for reasons of local difficulty, or are not yet interested. The number of them is rather a large proportion of the total number reached by the Committee. Perhaps, however, many of the "no reply" situations are explained in the following: "School people in this state have given evidence of much interest in the education of the gifted as well as the mentally handicapped. After receiving your letter, I discussed with some of them the advisability of contributing material to the *Yearbook*. The general public is actively interested in education, but here, as elsewhere, is not educated to an appreciation of the differences in the native endowment of school children. In order to prevent any possible interruption of the progress we have made in grading and providing adequate educational facilities for our children in the schools, we are working *as quietly as possible.*" Again, from a region thousands of miles away from the above: "I have succeeded in getting a little better classification by grouping into A, B, and C sections. I make a little difference in the curriculum of these sections but *am forced to work very slowly in this conservative community.*"

A step in advance is indicated thus: "We are strongly convinced of the necessity for them [classes for the gifted], but have been hampered because we had to wait first for public opinion, and then for building space. We plan to begin soon and hope to have the gifted groups all in one building, and to give them an enriched curriculum."

For places where superintendents cannot for some reason get any sort of special organization under way, there is considerable value, by way of preparing the field, in the suggestion: "I have mainly given my attention to getting the teachers to try to make some sort of a discrimination between gifted pupils and regular pupils in lesson assignments, outside reports, minimal requirements, etc."

In this connection, it may be well to call attention to the fact that the preparation of the teachers for the work with superior children has proved to be a serious difficulty in the experimental stages of class organization. Among the evidences, from Ohio comes this: "In the elementary classes, *the teacher furnishes the largest problem.* It is difficult to find one who will throw the course of study aside and make it an experimental school, in which the interests of the child are considered first." From California: "In 1921 we did have one experimental group of twenty-five superiors who remained with the same teacher throughout the year, and who

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covered 4B, 4A, and 5B work in two semesters. Unfortunately, we did not have another teacher of the same type to carry on the good work—and the possibilities remain unsolved." There will doubtless be complete agreement on the part of superintendents who are attempting to solve this problem, with Dr. Whipple's "conviction that for the fullest success, teachers of superior pedagogical skill and equipped with a considerable stock of general information are needed."[1]

By a plan that indicates a recognition of the need to give some opportunity to the children without reorganizing the school work, Mr. B. J. Rohan, of Appleton, Wisconsin, has developed various *clubs* for studying particular things of interest in the seventh and eighth grades. He notes "a literary club which publishes a newspaper every week; a forestry club which is studying tree surgery and forestry; a teachers' club which is studying good elementary books on pedagogy; and a radio club." This plan may perhaps be found useful elsewhere for educating the public up to an understanding of the variability of endowment among children, and prepare the way for some organization of the schools to take care of them.

In many places individual superiors are selected in the elementary schools for *special promotions*, or grade skips, where no provision is yet made for separate classes for the gifted. This method easily takes care of large numbers of cases, but is accelerative only, and in most instances gives no evidence of basing choices of the child on scientific data, or of consistency of plan. Some reports, as from Newton, Massachusetts; Hinsdale, Illinois; St. Louis, Kansas City, San Diego, and others, indicate that children are usually selected by supplementing the judgment of the teacher with intelligence and accomplishment tests.

There is considerable evidence of great caution being exercised lest children be "rushed through school," and infrequent evidence of the consideration of other 'ages' than the chronological in the granting or withholding of the opportunity for rapid advancement.

A suggestion of interest on this point comes from H. D. Vincent, of School III, Troy, New York:

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[1] See supplement to September 1923 number of *Mother and Child*.

"It is with pleasure that I comply with your request by reporting what was done in this school in the way of allowing children to 'skip grades.'

"Until last year the method of promotion in our schools has been open to criticism. Children were promoted entirely on the basis of *examinations* made by committees appointed by the superintendent. The examinations were declared to be proper by the makers. Children were given the examinations and marked by as many standards as there were teachers. The examination papers, or so-called tests, were tested first and last on examination day, then junked. Religiously have we guarded against ever giving the same paper twice! The passing mark has been 75 percent, which means that a child who gets 74 percent was to do the whole year's work over. No one has asked what a passing mark is 75 percent of. I suppose because no one could answer the question. In fact, we have been accepting teachers' 'sagacious divinations' without tallying up with realities.

"For several years I have been realizing how weak our system has been; so during the summer of 1922 I took Dr. McCall's course in educational measurements at Columbia. My chief aim was to master his 'T Technique,' which I did to my own satisfaction. I worked the entire 'Technique' in my entire school in January, 1923. The results were both astonishing and gratifying—astonishing because they revealed how poorly my school was graded, gratifying because they gave me an opportunity to correct to some extent the poor grouping in my school. It was understood with the superintendent that no pupil who had been regularly promoted should be demoted. New pupils on trial could be placed where they belonged. Any pupil who ranked two or more grades above the grade already in could be given a trial in the next higher grade. If at the end of the year, the pupil proved that he could do the work as well as the average in the class, he would be promoted, that is, 'skipped' over one year's work. There were twenty such pupils in this school, about 6 percent of the school. For reasons unavoidable three pupils moved away before the end of the year, but I am proud of the fact that those who remained with us made good and in most cases showed better results than the poorer half of the class to which they were advanced. In one or two cases such pupils ranked about first in the class. At present, all are making good. In one case only the work seems a little beyond the pupil. Still, her teacher admits that she does better than many others in the class.

"It may be charged, as stated before, that, by skipping, a pupil may miss some fundamental work. I have answered that criticism in this way. Either they get it somewhere or in some way, or else it is not worth getting; for such gifted children get there in the end.

"Of course, in my school no pupil skipped entirely a whole grade, the skip being made at midyear. Personally, I like this better than skipping all of any one grade. Still, in some school systems where, for instance, much review work is given in the fall it might be better to make the skip then. I am ready to admit that a still better plan would be to have opportunity classes

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> where pupils might get rapid advancement and not skip; but we have no such classes and I know of none in this neighborhood. And so, lacking such, I am not willing to make the gifted child keep step with the slow without any chance at all to get a special promotion.
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> "In reply to your question as to what grades are best for skipping, I would say that first, I would not skip the first or eighth. In the other grades I cannot state any particular reasons for not skipping if the pupil is sufficiently gifted. I expect, however, that opinions will be guided somewhat by the course of study a city follows."

To prevent "complete loss of fundamentals that might be entailed" in grade skipping, it is not unusual to find some sort of plan for covering the skipped ground. In Sioux City, Iowa: "We maintain in our different grade schools *special aid rooms.* The special aid teacher works with small groups of pupils that the teacher and principal decide can cover additional work or make additional grades by means of special aid being given in certain subjects and at certain times. *We never have more than four pupils in one of these groups.* We do not remove pupils from the regular work of the grade school but give them this special aid at such times as will cause least confusion to the school and to their work. The pupils then, when ready, are quietly transferred from one grade to another, and their promotions made without any great advertisement. We try to make this work as inconspicuous as possible. We do not in any sense ever advertise that any work we do is especially for gifted children."

The cost of carrying an extra teacher to care for very small groups may be prohibitive in many systems. Frequently, however, there are assistant principals, part of whose time may be assigned to the superior pupils, as in San Diego, which reports "women vice-principals who act as *coaching teachers.* Where the mental ability indicates the safety of advanced grade work, these vice-principals arrange flexible programs for the 'specials' and also parallel the class teacher's instruction. They aim to remove the failure to make good in a new environment, and also safeguard the children against loss in fundamentals in the grades that may have been skipped."

San Diego adds a note of a unique plan occasionally followed, "of dismissing the class proper thirty minutes earlier than the advanced section," thus providing the class teacher with an additional period "which is devoted exclusively to these cases."

In Denver, the Whittier School, under Mr. H. W. Zirkle, has carried on consistently for some years a *special plan of acceleration* that has been satisfactory as a saver of time, and as such is worth reading. Mr. Zirkle reports:

"I think the ideal scheme would be to have a sufficient number of these pupils with a high I.Q. to constitute a class by themselves and then do both—give them a broader and richer course and also take them over it more rapidly. This can be done in a very large school or in groups of schools aggregating something like 3,000 or 4,000 pupils. Three thousand pupils ought to furnish sufficient exceptionally bright children to make a good sized class in each grade. These ought to be segregated, beginning about the third grade and kept in a separate class throughout the grades and the high school.

"Our school being small—only about 1,000 average enrollment—we could not follow the plan of permanent segregation. As the most feasible scheme possible within our limitations we hit upon the following plan:

"Children selected for acceleration are taken from their regular room and placed in the room devoted to this work. These pupils continue the work as in the regular room, though more rapidly, till they have caught up in all the main subjects with the class just half a grade ahead. They are then placed in the advanced class, thereby having gained a special promotion.

"While in this room, writing as a separate exercise, music, the regular period with the playground teacher, and drawing are suspended. (We are now planning to give them half time in drawing.) All the other subjects of the grade are taken, the pupils making rapid progress by reason of their ability to acquire. In mere drill work less is needed than in the regular class. The opportunity to make a special promotion stimulates the pupils while in the room to greater exertion.

"Usually another class for the special room is then selected from the class to which the special promotion is made to prevent over-crowding; and in this manner the work is kept up through the school year. Two classes, or grades, aggregating from twenty to twenty-five pupils, are kept in the room at the same time.

"The time allowed each class to accomplish the work of catching up with the half grade just ahead is nine and one-half weeks, or half of the semester. Thus four sets of pupils aggregating about one hundred have an opportunity in the room each school year.

"Two classes of children are eligible—those with superior native mental ability and those who have, for some reason, become retarded and are capable of restoration to their proper grade.

"Factors: (a) Class standing, (b) mental ability, as determined by the Stanford Revision of the Binet-Simon Intelligence test, (c) effort, (d) physical condition.

"The two most important factors are the class standing and the mental age. Experience in this room has proved that a child is capable of acceleration until he has reached the grade corresponding to this mental age. Thus, a child of nine with a mental age of eleven, if he has the proper opportunity, can be accelerated at this age till he reaches the sixth grade. He ought not to be pushed beyond. On the contrary, a child of eleven with a mental age of nine ought not to be beyond the beginning fourth; but, if he has not yet reached the fourth, he is capable of acceleration up to that point. In other words, a subnormal child, retarded below his mental age, is capable of acceleration to the grade corresponding to his mental age.

"In some instances, when we were unable to find a sufficient number of bright pupils of the grade selected to fill up the class, the slower pupils of the grade just above were permitted in the class, thus giving them an opportunity to strengthen themselves in the work just gone over, and at the end of the period to be restored to their regular class. It was found that these pupils were always inferior to the bright pupils in the lower class. It did some good, but would hardly pay for the expense of an extra teacher.

"The plan is simple, inexpensive, and easily operated, one teacher being able to care pretty well for the bright pupils in a school of from 1,000 to 1,500. The reason it is so little used, I think, is the ignorance of the principals and teachers of the actual number of superior children they really possess. These children exist everywhere, just as the subnormals. Both ought to be sought out and cared for. Many a time in the last twelve years have I sat in my office and wondered where my next class was to come from but on investigation the class every time was found, and very rarely have we pushed a child beyond its mental capacity. Since the intelligence tests have come into use, there is no necessity for this to happen at all. Before we used the tests, we had to consider the chronological age largely as a factor, which is not reliable. Even here we were doing what many are still doing—accelerating the subnormals and retarding the gifted.

"If a child is capable of making more than one special promotion, he is retained in the room with the new class entering, or he may be returned to the regular school and be selected again when the opportunity comes. Some children have made as many as four special promotions before leaving the eighth grade. Our aim is to advance them to a point where they will find opportunity for the exercise of their superior intelligence. It is based on the theory that when a child has once reached the grade corresponding to his mental age, he will then be required to put forth a normal effort to keep up with his class.

"Careful record is kept and observation made of these children after special promotion and it is found that as a rule the large majority of them continue to be among the best in the class. Rarely one fails and loses what he has gained.

"This room has been run on this plan continuously for the past twelve years and has demonstrated its usefulness in the lives of nearly 1,000 different children, by putting them creditably through the grades from a half to two years earlier than they otherwise would have been. Many of these children have gone on through the high school and college never missing a single promotion throughout their school careers. Measured in dollars and cents, reckoned on the number of promotions made by each regular teacher, it has been a saving to the district of the salary of one teacher each year throughout the whole period, which in Denver means nearly $15,000.00."

A mode of acceleration, commonly known as "*preparatory centers*," that has been in practice for twenty-years in Worcester, Mass., is described by their bulletin as the forerunner of the present junior high school plan in conception. In effect, however, it seems rather a device for shortening the high-school years by introducing high-school subjects into the grades, for which work the pupil receives high-school credit. There is no claim for enrichment of experience made for the plan.

There are five preparatory schools in Worcester which pupils may enter who are of more than average ability (that is, who rank 75 percent or more in English, geography, history, and arithmetic), and who wish to shorten their high-school course or to get a more complete knowledge of French or German. They must have completed the sixth year of the eight-year course and be recommended by their principal. They remain in these special centers two years. We admit, says the report from Worcester, all applicants who have good health and who have maintained a good standing in their classes. We insist upon these two requirements, inasmuch as the work in the preparatory schools is somewhat heavier than in the elementary schools. Pupils take the same studies as in the regular grades, with the addition of Latin and French or German. In order to enable them to do this, the work in arithmetic, geography, and especially grammar is lightened. On entering the high school these pupils join the second-year classes in Latin, French, and German. They are thus enabled to complete the high-school course in three and one half years, while many graduate in three years, with good preparation for college.

Indianapolis, too, has had an arrangement by which bright children in the seventh and eighth grades of the departmental schools could take one half year of Latin and algebra for high-school credit; and if the excellence of their work in civics, English, and sewing warranted it, one-half unit's credit might be had in those also.

There is a notable frequence of expressions of doubt as to whether hurrying bright pupils through the regular curriculum of the grades and into the high schools at a very early age is, after all, profitable. In all quarters are evidences of a search for plans of organization that will make it possible either to segregate special groups or to arrange classes into ability groups, each of a degree of homogeneity that will render differentiation of the curriculum easier to manage, so as to give the superior pupils programs of enrichment as far as their capacity permits, with or without acceleration of progress in time.

Very recent reports from *Los Angeles* indicate that there are under way two significant pieces of work, the data on which, when available, will be suggestive, if not conclusive, to other systems of that size. There are five experimental classes in Grades VI, VII, and VIII, in which every pupil has gained admission by National Intelligence tests scores above 120. They are working through a special curriculum, not yet in print, and up to the present there are no data as to the benefits which accrue to these pupils.

Indicating the undertaking of experiments of wider scope, Los Angeles is reclassifying schools generally on the basis of the McCall Method, establishing X-Y-Z classes. Progress has not reached the point of modifying the curriculum, but for the X classes an enriched program is planned.

Columbus, Ohio, after experimenting with a special class for gifted pupils, abandoned the plan. Although two full years of time had been gained before entering the eighth grade of the junior high schools, administrative difficulties, mal-adjusted social relationships, besides complications due to change of teachers, have elicited the opinion that the experiment has not proved entirely satisfactory. Instead, Columbus is planning to provide additional work for superior pupils in their normal grades, and hopes to accomplish a combination of enrichment of course with rapid promotion.

From *Rochester, New York*, comes evidence of a successful organization of segregated classes for gifted pupils that is readily applicable in groups of schools, and which will repay study in that it includes other purposes than acceleration as to time alone.

"In September, 1920, we organized two accelerated classes. These classes served as centers for certain schools. Each class was composed of thirty pupils who were selected from seven contributing schools, that is to say, approximately fifteen schools of our system had the opportunity to send pupils to these classes. No pupil was permitted to enter the class who, upon examination by our Child Study Department, had an I.Q. below 120. These classes were begun as Fifth B Grade classes. Our plan is to have the same teachers carry these groups for two years, from the time the pupils enter the class until they are sent to the junior high schools.

"Our main purpose is one of enrichment, rather than acceleration as to time. We make no attempt, however, to hold these groups to the rigid requirements of the regular course of study. As rapidly as the group is able to begin the work of the next grade in any subject, this work is taught. In every way we endeavor to give these children a more enriched curriculum rather than the minimal essentials of the regular curriculum in a shorter space of time.

"In September, 1922, we opened the third class on the same basis with the others. In September, 1922, our first group entered the junior high school. Arrangements were made to have the class appear in the junior high school organization as a unit. Other pupils have been added to the class from time to time. Of the two original classes, one furnished us the best opportunity for studying the entire experiment because we did not have to change the teacher during the entire period of two years. We have followed the work in the junior high schools done by the class which was taught by the same teacher during the two years. This class has a very excellent record. These teachers have kept an accurate record of the extent to which the present course has been enriched."

Detroit has had Special Advanced Classes since September, 1915, and in June 1923, Miss A. M. Engel reported "three centers, with four classes in each center, namely, B and A Seventh, and B and A Eighth. Each center had two teachers and also received help from the regular school staff in music, art, manual training, domestic science and sometimes in school subjects. Teachers were all rated A and had the personality, experiences of travel, and study needed for this type of class. They were resourceful, earnest, and stimulating. They received two hundred dollars a year above the regular salary." Extra part- or full-time teachers were assigned by the school to these classes for recitation work.

Since children came to the centers from long distances and brought their lunches, the day's program was scheduled between 8:45 and 2:30, with a short supervised lunch period.

"Because of the generous help received from the regular school organization, more recitations were possible in the Special Advanced Classes than in ordinary rooms. This arrangement did not, however, allow much time in school for preparing lessons, and much had to be done outside of regular school hours." The report comments on this fact as follows:

> "It would seem that a consolidation of classes might easily be made. Larger topics of interest might well be carried on in a classroom with less attention paid to the old grade groupings. One scarcely remembers whether a certain piece of information was learned in one grade or another. Grades are arbitrary groupings after all. It seems also that these children ought to be able to do almost all of their school work in the classroom and so allow more time for outside reading, athletics, social activities, and the development of special ability. No effort was made to accelerate these pupils, but each subject was enriched by going into more detail and doing more outside reading. Actually, however, acceleration did take place, as the children entered the high schools with credits in Latin and algebra, and often in English as well.
>
> "When we look at the school records of the children, we find that nearly all of them had skipped grades before entering the Special Advanced Classes. More had skipped B-Second than any other grade. When they reached this point, they had probably mastered the mechanics of reading, which was about all that is required of them. Both the B-Third and the A-Fifth grades showed a much smaller percent of skips than any others. It is in these grades that retardation in the Detroit school system is greatest."

The Detroit experiment should be carefully studied by administrators who are planning similar work. In his report for 1922-23, Superintendent Cody says that "accurate reports are being kept of the work done, and it is expected to use the data in planning for X sections throughout the city."[2]

ORGANIZATION FOR GIFTED PUPILS IN THE JUNIOR HIGH SCHOOL

The junior high school, in gathering together sufficient numbers of pupils in its various grades to necessitate sectioning, is affording the best opportunity that has yet been developed for sectioning according to ability. This is being done everywhere, and as a rule in three groups, but sometimes in more than three. It is almost universal that the best group has saved one or more terms in the three years of the junior course. But here, as in elementary acceleration, there is a growing belief that the opportunity for differentiating the curriculum as afforded by junior-high-school organization, presents possibilities of enrichment of experience more valuable, perhaps, than even the saving of considerable time.

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[2] See Chs. I and XII for additional information concerning the work in Detroit.—*Editor.*

According to Principal H. H. Ryan of the Blewett Junior High School, St. Louis: "That some deliberate provision for acceleration is wise seems obvious. If groups of the superior type are to furnish large numbers of professional men who must go through college, professional training, and a starvation period, a year saved here and there is worth while." But "Who shall be accelerated? How shall it be done?" are two real questions that Mr. Ryan's experience may throw some light upon.

> "The Blewett Junior High School has had the majority of its pupils working on an accelerated program. One section of each incoming class, the so-called 'A' section, has customarily completed the three grades, VII, VIII, and IX, in two years. Another section, the 'B' section, has completed the three grades in two and one-half years; and the third, or 'C,' section has proceeded at the normal rate.
>
> "While this policy has been justified by the results, there have been difficulties here and there which have impressed us with the fact that the plan must be administered carefully in order to avoid accidents of the type which sometimes occur in the handling of sharp-edged tools. We have had a few cases of failure in the senior high school for which no explanation could be found either in the native endowment of the students concerned or in their work in the Blewett Junior High School. To avoid such cases, changes were made in the manner of classifying, chiefly in the matter of the percentage of the incoming group working on the accelerated program. The 'A' section came to be limited to about 20 percent of the group. This resulted in minimizing failures among 'A' students in the senior high school.
>
> "In spite of this satisfactory adjustment of the academic phases of the situation, there remained on the part of some of the senior-high-school teachers some resentment on account of the immature appearance, manner, and philosophy of some of the accelerates. It was necessary, therefore, to make a study of the characteristics of the pupils other than school ability.
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> "We finally decided to be guided by the counsel of Woodrow, Baldwin, and others and to attempt to base the selection of the 'A' group on the degree

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of general maturity. We enlisted the sympathy and active aid of the teachers and the principals of the tributary elementary schools, the school physician and nurses, and the director of tests and measurements. As a result, we received, in December, 1922, a wealth of information concerning each child who was scheduled to enter the Blewett Junior High School February 1, 1923. The following items were included: (1) general ability rank in class, as estimated by the elementary school, (2) chronological age, (3) mental age, (4) intelligence quotient, (5) reading rate score (Monroe), (6) reading comprehension score (Monroe), (7) arithmetic fundamentals score (Monroe), (8) height, (9) weight, (10) dentition age, as estimated by the school physician, (11) social age, as estimated by the elementary school, and (12) physical status, or condition of health, as estimated by the school physician.

"By means of age norms we translated into ages such of the data as were not already so stated. The social age was judged by the elementary-school teachers on the basis of the age of the companions sought, the games enjoyed, the general maturity of bearing, etc. The weight in relation to the height was taken as one indication of the state of health, the doctor's estimate as another.

"In determining the personnel of the 'A' group, the following standards were adhered to: (1) no pupil was included whose intelligence quotient was less than 120; (2) no pupil was included whose pedagogical skills were not above the median; (3) no pupil was included who was retarded in physical or social development; (4) no pupil was included whose health was marked 'poor' by the physician.

"As matters now stand, the 'A' group and the highest 'B' group are of about the same average intelligence. The 'A' group, generally more mature, is doing the work of the three grades in two years. The 'B' group is taking two and one-half years for the course, and its work is to a corresponding degree enriched."

From teachers within the school come comments in the following terms after experience with the classes:

"This second half-year's experience with my present 'A' group only strengthens my earlier impression that the selection of this type of pupil on the basis of general maturity is a step in the right direction. Their school performance and their splendid habits of attention make them responsive in a high degree to a large field of work. With one exception—a discipline case due largely to home environment—there is an even all-round development. While the academic subjects have the strongest appeal, there is a very wholesome regard for the arts and athletics. Initiative and group spirit are strongly in evidence. A fine attitude in citizenship makes them eager and ready to serve in all the activities of the school."

Another compares the 'A,' or maturer, group with the younger 'B,' thus:

> "The pupils of the 'A' and 'B' groups are alike in that they do excellent work and show great enthusiasm for it. In their methods of attacking a new project the difference between the two can probably best be seen. The children of the 'B' group set about their work with noisy enthusiasm. In the end they produce a brilliant piece of work, well executed. Those of the 'A,' on the other hand, go about their work with quiet dignity, but are none the less enthusiastic, I believe. The 'B' children, being less mature physically than the 'A,' are more playful, more forgetful, and consequently less reliable. In that they present a problem not easy to solve, I find them less easy to teach, but more interesting than the 'A's.' "

In the secondary schools the wide elections of courses and subjects now commonly offered take care to some extent of the varying ability of the pupils. In the *Sixth Yearbook of the National Association of Secondary-School Principals,* is a contribution by Ray H. Bracewell, Principal of the Burlington High School, Iowa. In it he demonstrates that sectioning of classes according to ability into groups is the best method of taking into account individual differences, and recites numerous advantages of sectioning as he sees them. Elsewhere he says:

> "For some years we have segregated our children into groups according to ability as indicated by intelligence tests and previous grades. In every instance we have arranged the program so that the different sections fall within the same period, making it easy to transfer a student from an 'A' section to a 'B' or *vice versa* as the character of his work may change.
>
> "We have attempted to build the whole school program around the practice of testing students and varying the course of instruction and work of the class to meet the needs of group differences. I suggest that we are making segregation a part of our school program in contrast to certain schools who tend to carry on experiments with certain classes. This eliminates much wasted effort and energy.
>
> "While we use intelligence tests to a large extent and, we think, effectively, from the standpoint of economy, we do not depend upon them as a final criterion in making assignments to ability groups. Students are placed in an ability group the first year on the basis of the recommendation of their grade-school principal and on the basis of their intelligence test. After the first semester they are placed in ability groups on the basis of their grade-school record, their intelligence test, and their success in the high school in similar work. In all cases we make it possible for a student to transfer from an 'A' section to a 'B' section, or in some cases to a 'C' section, without

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being transferred to another period. In other words, a class with us consists in fifty, seventy-five, or one hundred students to which two, three, or four teachers are assigned, all sections meeting within the same period. What I have attempted to say here is that, in the end, accomplishment is the final factor in determining the section to which a student will be assigned.

"We are attempting at this time to work out a technique for teaching 'A' sections as contrasted with 'B' sections. This is not easy and we have not progressed far. We have also attempted to vary the content of the subjects according to the needs of 'A,' 'B,' and 'C' sections. In general, we attempt to give our better students a broader course rather than to accelerate their progress through school. In the end our objective might be best expressed as follows: The goal of a democratic high school should be to adjust itself to provide for each student to attend school for four years, pursue those courses, and follow those methods that will best equip him to attain his own highest standards of excellence and to accomplish his own maximum development."

An organized system of promotion and differentiation has been developed in *Providence, R. I.* All school principals were consulted in the formulation of the policy and it is working apparently satisfactorily from the administrative point of view after five years of development:

> "Our program calls for a slight acceleration during the first six or seven grades, not to exceed two years, of children who are superior or very superior both in achievement and intelligence as measured by achievement and psychological tests. When such children reach the high school or junior high school age, they are then classified according to ability for the purposes of guidance, enrichment, and differentiation. Our classification is not based alone on their I.Q.'s, or mental ages, but is arrived at through a study of both of these items plus such other information as actual scholarship ranking, attitude toward school, educational and social status of the home, probable educational and vocational future, exceptional advantages which parents are able to offer in the way of special instruction, and the number of hours of necessary activities outside of school. The classification of these pupils in the high school is carried on by a special committee of teachers trained for the work.
>
> "To sum up, our program calls for (1) adjustment of the child and the grade in which he can do his best work, (2) acceleration during the early grades, and (3) classification and enrichment during the junior and senior high schools. Our program is exactly what the best principals and teachers have always done, but we are trying to do it more accurately through measurements rather than by guess work or individual judgments."

It is quite evident that the most difficult aspects of the gifted child problem do not lie in the field of the formal organization of the school. Grade skipping, segregation, grouping within a class, sectioning according to ability within a grade are simple enough to manage. There is increasing agreement on the desirability of enriching the experience, rather than speeding the rate of the capable children through the all-too-meager offerings of the school years. The biggest question and the most difficult of solution is undoubtedly recognized as this: "How shall their superior powers be challenged, and how shall curricula and schoolroom procedure be modified to meet more fully the rightful demands of superior endowments?"

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CHAPTER IV

SOME PHASES OF THE ADMINISTRATION OF THE EDUCATION OF GIFTED CHILDREN

Leon O. Smith
Assistant Superintendent of Schools, Omaha, Nebraska

Many of the studies relative to the education of gifted children made heretofore have dealt largely with the methods of selecting the children and the high records of such classes in certain standard tests. It is the purpose of this particular study to ascertain if possible what are some of the standard practices relative to such questions as—housing; equipment; qualifications, experience and salaries of teachers; cost of instruction; advantages and disadvantages of the idea; size of classes; and other points of administration.

Questionnaire

Shortly after the opening of schools in 1923 the following questionnaire was sent to approximately 130 selected cities and institutions in 31 states in the United States where there was a possibility or probability of something being done in a definite way toward the education of the gifted, or superior, child.

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION
Twenty-third Yearbook Committee Study of Administration of Education of Superior or Gifted Children

Kindly fill in the following blanks as fully as possible and return at once to Leon O. Smith, Assistant Superintendent of City Schools, 602 City Hall, Omaha, Nebraska

1. Name of city or institution reporting..................................
2. Name and position of individual reporting..........................
3. Do you attempt to provide special instruction for superior or gifted children in elementary schools?..

In what grades?..
In junior high school?..
In senior high school?..

4. If you do not have such classes now, do you anticipate providing such classes in the near future?..
5. Have you discontinued such classes after having established them?......
Reason? ....
6. If you have classes for the education of superior or gifted children do you provide:
    a. Special buildings? ....
    b. Rooms in regular elementary schools?...................................
    c. Rooms in regular high schools?...
    d. Other means of housing?..
7. How does the equipment in the way of desks, globes, maps, library, reference material, visual education, etc., differ in these classes from that of the regular classes?..
Do you have free textbooks in your schools?...............................
8. Teachers:
    a. What qualifications as to training, experience, travel, personality, etc., must teachers have to be placed in charge of these pupils?..........
    b. How many teachers are now doing this type of work?..............
    c. How are the teachers selected?...
    d. How much additional salary above that of regular teachers, if any, is given for this work?..
    e. Do your teachers advance from grade to grade with the class of pupils? ....
    If so, for how long?...
9. What is the pupil cost of special instruction as compared with regular instruction? (Pupil cost based on general control, instruction, operation, maintenance, auxiliary agencies, and miscellaneous expenses. Do not include capital outlay or debt service).................................
10. Do you have a special department for administration, supervision and teaching of these classes?..
Name and position of person in charge?..
11. What are the typical objections in practice to the special education of superior or gifted children?
    a. On the part of parents? ....
    b. On the part of teachers? ....
    c. On the part of pupils? ....
    d. From the standpoint of administration?..................................
    e. Any other ground? ....
12. How can these objections be met successfully?............................
13. What is the attitude of high-school teachers toward these pupils when they enter the high school?...

14. Publicity:
 a. What publicity is given to your classes for superior children?.....
 b. What publicity is desirable? ....
 c. What publicity is undesirable? ....

15. What do you consider the best nomenclature for these classes (such as accelerated classes, speed classes, enrichment classes, rapid progress classes, X classes, Alpha classes, etc.)?..............................

16. How does the length of the school day in these classes differ from that of the regular classes of the same grades?..............................

17. How are pupils transported to these classes?..........................

18. Who pays for the transportation?..................................

19. How is the lunch problem solved; cafeteria or do children bring lunches from home? ....

20. Number of pupils in each of these classes?...........................

21. Does this number differ intentionally from the number in the other classes of the same grades?..
 How much? ....

22. How does the program of studies differ from the regular program? Enclose a typical program...

23. Any additional information which you think would be of service in this study ....

The response to the questionnaire was most gratifying as far as numbers were concerned. Sixty-eight replies were received from various places in twenty-five states. Most of the replies received stated that nothing was being done beyond sectioning classes according to ability, and it is perhaps fair to assume that nearly all, if not all, of the cities which did not answer are doing nothing definite in this field. The tenor of the negative replies is indicated in the following quotation from one letter—"Your questionnaire concerning gifted children has been handed to me for reply. It is the easiest one I have had for a good many days because we have done nothing thus far in providing more and better school facilities for gifted children. We are doing an unusually large amount of special class work for subnormal, tubercular, deaf, and blind children, but thus far the genius has escaped us."

SUMMARIZED REPLIES

The responses to the questionnaire are here summarized. The paragraph number corresponds to the number of the question in the questionnaire just given.

3. A careful analysis of the data seems to indicate that fewer than 20 cities in the United States are doing definite work along the line indicated in the questionnaire.

4. Washington, D. C., and Allegan, Michigan, both report that they anticipate providing classes for gifted children in the near future.

5. Only four cities report a *discontinuance* of such classes after having established them. One reported jealousy among the principals as the reason. Another reported that it "temporarily ran out of material." The third stated that an economy and retrenchment program made it necessary to discontinue a class. The fourth city did not indicate the reason.

6. All classes reported have been *housed* either in regular elementary-school buildings, regular high-school buildings, or as a part of the regular classroom in a few cases.

7. A majority of the cities report that the *equipment* in the classroom does not differ from that in the regular classes. Jackson. Michigan, has somewhat better equipment for the classes for gifted children. St. Paul, Minn., and Rochester, N. Y., report more reference material. Richmond, Virginia, reports movable desks and more books. A number of cities say they have no better equipment, but that the pupils make better use of the regular equipment.

8. It is evident that the most successful *teachers* in the school system are the only ones eligible to be placed in charge of these pupils. The following are a few quotations as to the qualifications required in the various cities: "conspicuous success," "initiative and originality," "life certificate and at least two years' experience," "must have vision," "ten years' experience," "eight years' experience," "above average intelligence with strong personality," "five years' exceptional experience."

In the various cities from 1 to 30 teachers are reported to be doing this type of work, although it is probable that where the higher numbers are given the teachers mentioned are merely in charge of sections of brighter pupils.

In most cities an additional *salary* is given to teachers working with gifted, or superior, children. Richmond, Virginia, reports $200 a year additional. In Oak Park, Illinois, the maximum for

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these teachers is $200 higher than the regular maximum. Dayton, Ohio, pays these teachers $100 to $200 more a year. Jackson, Michigan, reports $50.00 a year additional and Detroit $200 a year additional above the regular salary.

Six cities report that their teachers *advance from grade to grade* with the class of pupils, while fourteen responded negatively. In St. Paul, Minn., and Rochester, N. Y., the teacher may be with the same class for two years, and in Oak Park for three years. In Richmond, Va., and St. Louis, the teacher remains with the class for one year. In Jackson, Michigan, the teacher may remain with the class as long as two years, and in Detroit, the teacher may remain until the eighth grade.

9. Interesting responses were given to the question concerning the *cost* of this special instruction as compared with that of regular instruction. Ten of the 18 cities report no difference in the cost. St. Paul, Minn., and Lawrence, Kansas, report bigger classes which keeps the cost down, and the Whittier School in Denver reports that the cost is one-half of the regular instruction because the pupils progress more rapidly. Everett, Mass., reports the cost "less in the long run," and Richmond, Va., is the only city which reports that the cost is greater. The report there indicates that the annual per capita cost is $10.00 greater than for regular instruction.

10. Jackson, Mich.; St. Paul, Minn.; Richmond, Va.; and Detroit, seem to be among the very few cities that have anything like a special *department for the administration and supervision* of this type of work.

11. Most of the cities report that there are no *objections* whatever to the special education of superior or gifted children as carried on at the present time. A few returns mention objections on the part of the parents, such as too long distance, cold lunches, "crowding the pupil," missing part of work, health, "undemocratic." One superintendent reported that there is no objection to the scheme if the pupils are left in the same building.

Only two objections seemed to be voiced on the part of teachers. One is that some teachers hate to lose their bright pupils, and the other, like unto the first, that "all the teachers want the 'super' pupils."

Most of the pupils seem to approve of the plan and raise no objections unless they reflect those expressed by their parents. In some cases the less gifted children are inclined to be jealous and once in a while the charge of favoritism is raised. However, it is fair to say that these objections may arise in any type of school organization and with any groups of children.

From the standpoint of the administrator, the chief difficulty, especially in smaller or more 'spread-out' cities, seems to be encountered in centralizing a sufficient number of these bright pupils to form a special class.

12. Since these objections depend a great deal upon local conditions, it is necessary to know local conditions in order to meet them successfully.

13. A very large majority of the responses on this point indicate that the *high-school teachers* have a most favorable attitude towards these gifted or superior children when they enter the high school. Two reports indicate that high-school teachers are sometimes over-critical; one superintendent puts it this way—"some object, as usual."

14. The consensus of opinion among the various superintendents reporting is that very little, if any, *publicity* should be given to classes for gifted children. The classes should be organized quietly and carried on with as little publicity and advertising as is possible.

15. Various *names* for these classes have been suggested. Five replies favor the name of "accelerated" or "enrichment" classes. Three voted for the name "Alpha" classes. Three preferred the terminology of "X" classes. There was one report for each of "rapid progress," "special promotion," and "superior scholarship" classes. One school official in answering this question said he was not particular what name the class bore so long as the name did not imply speed.

16. Practically without exception the *length of the school day* in these classes is the same as that of the regular classes in the same grade. In two or three cases the day is a half hour, or even an hour shorter than in the regular classes.

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17. All cities reporting state that the *transportation* of pupils to these classes is taken care of by the parents, where the class is outside of the pupil's own district.

19. The pupils either bring their *lunches* from home or eat in the school cafeteria. Worcester, Massachusetts, reports one session from 8:30 in the morning until 1:00 in the afternoon.

20. The *number of pupils* in these classes ranges from 20 to 45. There is a tendency however, as has been indicated before, for the number to be larger than that of the regular class. Of the cities reporting, the median for classes of this type is 35 pupils.

22. The following are the *programs* used in two of the centers for gifted children in Detroit:

DETROIT PROGRAM

Grades

There were, in each of the three centers, four classes, B and A 7th and B and A 8th.

Teachers

Each center had two teachers, and they also received help from the regular school staff in music, art, manual training, domestic science, and sometimes in school subjects. The teachers were all rated as 'A' and they had the personality, experiences of travel and study needed for this type of class. They were resourceful, earnest, and stimulating. They received $200.00 a year above the regular salary.

Schedules

Since the children came from long distances and brought their lunches, they had a short noon hour and were dismissed an hour earlier than the other children. The following schedules give an idea of a day's program.

CENTER ONE

Hour	Time	I	II	III	IV
			Morning Sessions		
8:45	30				B7-B8 History A7 Latin, A8 Arith.
9:15	30	B7 Algebra	A7 Literature	B8 History	A8 Latin
9:45	30	B8 Algebra	A8 Latin	B7 English	A7 History
10:15	15		Recess		
10:30	30		Physical Training		
11:00	30	A8 Algebra	B7 Latin	A7 History	B8 Latin
11:30	30	A7 Algebra	B8 Latin	B7 History	A8 Civics
			Supervised Lunch Hour		

Special Classes

8:45	90	Tuesday	Household Arts, Manual Training A and B8
8:45	90	Thursday	Household Arts, Manual Training A and B7
8:45	45	Friday	Drawing A and B8
9:30	45	Friday	Drawing A and B7
8:45	25	Mon. & Tues.	Music

Afternoon Sessions

12:30	30	B8 Arithmetic	A8 Literature	A7 English	B7 Arithmetic
1:00	30	B7 Arithmetic	A7 Latin	A8 Civics	B8 Arithmetic
1:30	30	A8 Arithmetic	B7 Literature	B8 English	A7 Arithmetic
2:00	30	A7 Arithmetic	B8 Literature	A8 English	B7 Latin

Special Classes

1:00	45	Thursday	Drawing B and A8
1:45	45	Thursday	Drawing B and A7

This class had an extra teacher assigned by the school for recitation work

CENTER TWO

Hour	Time	I	II	III	IV
			Morning Sessions		
8:45	30	Algebra	Arithmetic		History
9:15	30	Latin	English	Mathematics	
9:45	30	English		Latin	Literature
10:15	15		Recess		
10:30	30		History	Algebra	English
11:30	30		General { Public Speaking—Monday, Wednesday Music—Tuesday, Thursday,		
11:30	30	Mathematics		Algebra	
			Special Classes		
10:15	90	Friday	Manual Training A and B8		
11:00	45	Friday	Drawing B and A7		
			Afternoon Sessions		
1:00	30	Civics	Algebra	English	
1:30	30		Physical Education		
2:00	30		Latin	History	Mathematics
			Special Classes		
1:00	90	Thursday	Manual Training A and B7		
1:30	60	Friday	Drawing A and B8		

This class had a part-time teacher assigned by the school to aid in class recitations

CHAPTER V

THE CURRICULUM FOR THE GIFTED: SOME PRINCIPLES AND AN ILLUSTRATION

ERNEST HORN
State University of Iowa, Iowa City, Iowa

I. SOME GENERAL PRINCIPLES THAT SHOULD CONTROL CURRICULA FOR THE GIFTED

An examination of the replies to questionnaires sent to those who are making special efforts in the behalf of gifted children indicates the need of establishing some fundamental principles to guide makers of curricula for gifted children.

It is perhaps inevitable that those drawn into the work of discovering and classifying gifted pupils should have had unusual interest in psychology and mental tests. This is significant in view of the fact that the accepted point of view for curricula making is sociological. According to this point of view, the subject matter for any curriculum is to be found by analyzing the possible activities or situations which are characteristic of life outside the school. It is now recognized that there is a large 'minimum' list of objectives which must be required of all pupils above a certain level of intelligence without regard to whether pupils are below average, average, or superior.

It is clear, then, that the first step in making curricula for gifted children is to determine the most important life needs and to formulate these needs as objectives. In spelling, for example, the 5000 most important words for anyone to learn, whether he be gifted or otherwise, are the 5000 most frequently and commonly needed in writing. These words have been determined by careful investigations. If additional words are to be learned by those who are especially gifted, they must be chosen in order of importance, according to the data shown by these investigations. In a similar way, the most important problems in citizenship for anyone to learn are to be found by the analysis of the most pressing civic problems in life. A certain minimal number of these problems must be required of all.

Even in the field of aesthetic subjects it would seem that the common fundamental principles and common uses of an art, such as music, should determine the core of the course of study for the superior student as well as for the student of mediocre ability.

This does not in any way imply that differences in the capacity to learn do not constitute an administrative problem of the deepest significance. In fact, differences in ability to learn necessarily imply: first, differences in the amount of work done after minimal essentials have been mastered; second, differences in terms of quality of work, where differences in quality are relatively important in terms of social value; third, differences in rate of learning, and within rough limits, in actual grade progress; fourth, possible differences in the methods of learning in more complicated processes; fifth, differences in the skills and knowledges acquired incidentally, since incidental learning is undoubtedly greater in children of superior intelligence. To many, these differences point clearly to the need of segregating superior students.

It must be understood, however, that this portion of the *Yearbook* that deals with the curriculum does not presuppose a reclassification or segregation of pupils either on the basis of intelligence tests or upon any other basis. Neither does it suggest, except by implication, the factors which should enter into a reclassification; those problems are discussed elsewhere in the volume. Although the advantage of reclassification has not had adequate experimental proof, it seems probable that economy of effort is gained where reclassification is possible. In small systems it does not at present seem likely that the resources of the school are best used in segregating students. But, whether bright students are segregated or not, the problem of adjusting the curriculum to them remains the same, save for certain administrative differences. The problem remains the same, not only with respect to determining the general objectives to be attacked in each subject, but also with respect to determining the special detailed skills, attitudes, and knowledges which are essential to the mastery of each subject.

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An examination of data on individual differences in rate and quality of accomplishment shows how complicated the problem of adjustment is. Even where pupils have been classified and segregated, the variations in amount and quality of work done is considerable. More than this, each student is variable in his own accomplishment, working somewhat in spurts. The problem, in adjusting curricula to gifted children, is to secure the maximal accomplishment in quantity and quality for each pupil at all times.

That great differences exist among pupils must be admitted by all. These differences may be variously accounted for. Many of them are, no doubt, traceable to differences in capacity; some are due to variations in interest; some are the result of training; some are accounted for by differences in methods of work. The statistical and experimental investigations of individual differences have produced data of great significance. Yet these data, to be most useful, must be examined in the light of the ultimate purposes of education, both as applied to the good of the community to which education should contribute and to the fullest development of the individual students who are to make this contribution.

A full discussion of all the problems involved in the achievement of these ultimate purposes is impossible in the space allotted to this section of the report. Many of the problems are discussed in other chapters. Here there will be presented four important principles which should be considered in making and in teaching the course of study for gifted pupils.

(1) *The interests of the public at large are best served by developing in the elementary school and the junior high school a community of interests.* This is the principle which in sociology has long gone under the term "social like-mindedness." It has been explicitly urged, among educators, by W. C. Bagley, and implied by all the investigators who have attempted to establish school objectives through the analysis of social needs and opportunities. In its narrowest form it argues for minimal essentials for all. In its broader form it suggests that possibly, even after minimal essentials have been learned by superior students, the general policy should be to have the remaining time of the student devoted, not to the achievement of different objectives, but to the more elaborate

study of the minimal objectives. This principle applies most fully to subjects like hygiene, science, geography, history, civics, and aesthetic subjects; to a considerable degree to reading and arithmetic; and to a lesser degree to subjects like spelling and handwriting.

(2) *The bright student, as well as society at large, gains most when problems are attacked on deeper levels and by more elaborate methods than are possible with mediocre students.* In a sense this is an implication of the first principle. Variations in the ability to use more subtle attacks and gain more profound insights constitute the most significant differences in intelligence among people. The best interests of the student are not served by giving him more extensive tasks on the level of average and dull students. His interests are best served by attacking problems with all the thoroughness and all the vision of which he is capable. Where the duller student merely memorizes or is limited to rather obvious reasoning, the bright student not only achieves the learning of the facts but also delves into the principles underlying the facts and into the inferences to be derived from them. Such a plan not only commands the student's respect for school work, but trains the very type of ability through which he should make his distinctive contribution in future life. This second principle, like the first, applies more fully to content and aesthetic subjects than to subjects which deal more especially with rather mechanical skills.

(3) *Curricula adjustments should be made on the basis of school accomplishment rather than on the basis of intelligence scores.* This means that a pupil must qualify for work on a superior level by first doing the work on a level below rather than by making a superior score on some test of native capacity. There are three important reasons for adopting this principle.

(a) *It squares with the ideals and purposes of American democracy.* The American public is convinced of the sound policy of rewarding achievement rather than native endowment or superior opportunity. It admits that the man or woman of superior talent or opportunity can achieve in a superior way, but it insists that no credit is due and no further opportunity deserved until the achievement has actually been made. It especially exalts those who succeed in the face of what seem to be impossible barriers of poor physical endowment, inferior mental resources, or untoward circumstance.

There may be in this attitude of the public much idealism and even something of romance, but the most cold-blooded appraisal of its effect on the individual must convince one that it operates in a wholesome way. Even if the American public did not have this attitude, one of the first aims of statesmen in and out of schools should be to develop it.

These facts have clear implications for those who wish to gain public support in making adjustments for the benefit of gifted children. The public may be counted upon to support any plan which gives additional opportunity to those who show through accomplishment that they deserve and will profit from it. They cannot be counted upon to support a plan which will extend these special opportunities to those who have such real or supposed talents as are displayed only by tests of native ability. This does not mean that intelligence tests are to be thrown into discard. They are invaluable as one measure of the degree to which the school has stimulated or taught the student to achieve to capacity. Patrons may be lead to co-operate to the end that students do achieve on the highest level of which they are capable. The criteria, however, which will be in the minds of these patrons for demanding opportunity for pupils or for justifying the withdrawal of special opportunities will be not native capacity but actual achievement.

(b) *Such a plan is most wholesome for the student.* For example, he sees the justice of being freed from a spelling assignment of any length because he has learned the words, rather than because he may happen to have superior intelligence or a knack for spelling. He sees the fairness of being given or refused the privilege of doing more intellectual and interesting tasks in social sciences because he has learned or not learned the minimal part of the lesson rather than because he has a high intelligence score. He prospers better, not only in his scholarly development but also in the development of right attitudes toward work, because of this emphasis upon performance. Snobbishness is much less likely to develop in those who are classified on this basis of achievement than in those who are classified on the basis of native capacity.

(c) *Such a plan begets good teaching.* It emphasizes the fact that it is the teacher's business to secure satisfactory accomplishment. It is true that the teacher needs intelligence scores as an aid to help her judge whether or not the child is achieving to capacity. She will realize, however, that in the case of any given child the relation between his intelligence scores and his ability to achieve in a given subject, is by no means perfect. She will therefore put her first efforts upon the diagnosis of obstacles in the way of achievement and upon the removal of these obstacles through remedial teaching.

(4) *High standards should be set for bright students in tasks that are of a drill, memory, or routine nature.* It will be seen elsewhere in this *Yearbook* that the correlation between a high intelligence score and ability in spelling, in handwriting, or in arithmetic, is low. This is especially noticeable in the case of handwriting. How should these low correlations, describing present status, be interpreted? One may say that there is little reason to assume that children of superior mental ability should be superior in these three subjects. One is led to suspect, however, that these correlations would be somewhat higher if bright students were as interested, patient, and untiring in their efforts to learn these subjects as are those of less intelligence.

Now the ability to spell is of substantial social value. The same may be said for the ability to write and the ability to compute. These values should be strongly emphasized in teaching bright students. One cannot too much stress with bright students the importance of establishing a determination to achieve creditably in these subjects, even at the cost of a large amount of painstaking practice or study. In fact, it is especially valuable for these students to generalize the ideal that one should always do any important task in a painstaking manner.

The establishment of high standards is similarly needed to secure the review and memorizing which are essential to accurate grasp of the fundamentals in a subject which involves insight and problem-solving ability. The child of high general intelligence is an in those who are

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likely to gain insights and to solve problems more quickly than the child of lower intelligence. Because of this, and because of a superior command of language, the expenditure of a small amount of effort often enables the bright, but less conscientious student to pass the rather superficial inspection which the teacher gives through questioning in class recitations. Slovenly work is thus encouraged. Even when a gifted student has a real initial interest in a problem, he may fail to do the careful work which is necessary to the accurate grasp of the problem, and stop short of exercising the techniques which are necessary to remembering the essentials.

Either in the case of careful motivated drill necessary to the mastery of the three R's, or in the case of the hard work necessary to the mastery and remembrance of content subjects, the bright student should be held to especially high standards. He must be protected against the inconstancy of purpose and the complacent superficiality which comes from being permitted to move to new tasks without thoroughly finishing the job at hand.

These four principles have been consciously formulated to meet definite needs which have impressed me, not only as a result of reading the answers to the questionnaires which were returned to the chairman of our Committee, but also as a result of the study at first hand of attempts to make adjustments to gifted students. No matter what administrative plan is adopted in a school system for making such adjustments, these principles should, in my judgment, be taken into account.

II. METHODS OF INSTRUCTION WHICH BENEFIT THOSE WHO HAVE UNUSUAL SPELLING ABILITY

The low correlation between intelligence scores and spelling ability would seem to indicate that if children are grouped according to intelligence scores, the problem of adjustment in the gifted section will be about the same as in an average group or even in a below-average group. Actual experiment confirms this indication. In each group the variation in ability to spell will be very great and in each group the students who have unusual ability to learn to spell will constitute the problem with which this chapter is concerned.

One of the most significant steps which has been taken as a result of the scientific study of differences in spelling ability has been to individualize the teaching of this subject, in so far as it is administratively practicable to do so. There are two questions which must be answered concerning the individualizing of the instruction in spelling. First, how may individual differences be best taken into account in learning the minimal essentials in spelling? Second, what should the students do who have mastered these essentials?

Consider first the problem of making adjustments to gifted pupils in learning the minimal essentials. The modern tendency is to include about 4000 words in the minimal list to be learned. Some textbooks also include rules, word study, and phonetic analysis among the minimal essentials. However, the one essential upon which all modern texts agree is that there must be a minimal list of the words most commonly used in writing. For learning these words, about seventy-five minutes a week—fifteen minutes a day—are set aside in the school program. What adjustments, in learning this list, are to be made to the pupil who has unusual spelling ability?

TWO PLANS FOR INDIVIDUALIZING INSTRUCTION IN SPELLING

The only successful plans for making adjustments involve radical changes in classroom procedure. The writer has seen two types of procedure in successful operation. In the first type each pupil advances through a term's work in spelling at his own rate and is independent of the rate of progress of any other pupil. This is a thorough-going plan of individual instruction. One form of this plan is apparently working satisfactorily in Winnetka, Illinois, under the direction of Superintendent Washburne.[1]

In the second plan, devised by the writer, a class is held more nearly together by assigning the same list of words to be mastered in a given unit of time, but with care to provide, in a manner described later in this article, for individual differences in initial knowledge and in ability to learn the list. Each plan has its ad-

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[1] This plan is described in the *Elem. Sch. Jour.*, Vol. XXIII, pp. 751-762.

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ministrative difficulties and its advantages, but the second plan is at present more feasible since it involves less change from the class organization to which the teacher is accustomed. The most practical unit of time seems to be a week, although a unit of a month has been used with some success.

Either of these plans, to be most successful in individualizing instruction must include three provisions: first, each child before studying an assignment either for the first time or in review, must be tested over it in order that he may discover the words he needs to study; second, the size of the unit which constitutes an assignment must be larger than is usually assigned in one period; and third, each child must be taught an efficient method of learning to spell and a right attitude toward hard work. The advantages of each of these provisions are easily demonstrated.

1. *Testing to guide study.* By identifying the words which the child needs to study, the preliminary test renders three services. First, it saves the time which would be spent upon words which the child already knows. As spelling is commonly graded, a child of average spelling ability will already know at least half of the words in a new assignment as the result of incidental learning. The gifted speller will know at least ninety percent of these words. The saving is here so obvious that it needs no further explanation. Second, this preliminary test, by indicating the words which the child needs to study affords a sound basis for motivating the study of these words. There is no question but what the child's attitude toward a word that he has missed is more aggressive than toward any random word which happens to be in the spelling list for his grade. Tests repeated after an opportunity has been given to study, operate not only to show him what words, if any, still need to be studied, but also to give him an accurate measure of the amount of progress which he has made. Thus, on the one hand, the careful student is rewarded, and on the other hand, the careless student is confronted with the inevitable results of poor work. The child is told frankly that these repeated tests are necessary to indicate the success with which he has worked, as well as to afford the opportunity for recall and learning after an interval. The facts made plain to the child

by his own scores on these repeated tests demonstrate to him one of the most useful and fundamental of all the techniques of learning—namely, that repeated recall is essential to permanent retention. There is reason to believe that the rigor involved in this procedure gives a fundamental training likely to be neglected in teaching children above the average in general intelligence. Third, the preliminary test tends to remove that curse of all instruction—mere routine study. Anyone who has experimented with teaching a list of words to a group of children working as a unit has been struck with the small amount learned by some of the students who apparently went through all the motions of study. It is aggressive focalized study that counts.

Both at Winnetka and in the plan devised by the writer, the preliminary test has been found to be indispensable to successful achievement.

2. *Increasing the size of the assignment.* It is impossible to make a practical working adjustment to pupils of varied spelling ability unless the assignment is of considerable length. This does not mean that a day's assignment must be long. It means that the assignment should cover a considerable period of time. The spelling assignment should rarely, if ever, be for a day. Probably the most efficient plan based on a day's assignment is that devised by Wallin and described in his "Spelling Efficiency in Relation to Age, Grade and Sex, and the Question of Transfer." Briefly, this method provided for teaching all pupils in a class two new and eight review words each day. Direct experiment showed that this method was more efficient than other day-by-day methods recommended in the textbooks which were in use at the time this method was first recommended. And yet a detailed examination of the records made by individual pupils in these experiments showed: first, that the time of the good speller was largely wasted through having to study words which he already knew how to spell; and second, that for some reason many pupils made little progress.

The smallest assignment which is practicable is a week's work. If 4000 words are to be learned in the elementary school, this means, in the primary grades, from ten to twenty words a week. In the

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more advanced grades and in the high school it means twenty or more words a week. The following method of administrating this larger assignment is based upon the principle of a preliminary test followed by the study of words missed on that test. Many modern textbooks recommend this method. It can be used with any book or list of words.

The preliminary test, given on the first day of the week shows each pupil his exact job for the week. Students who miss no words in a test have no reason or motive for studying the spelling of these words and are therefore excused from doing so. On Wednesday all children should take a test over the assignment in order to show those pupils who have missed words what progress they have made, and in order to make certain to other pupils that their first correct spellings were not accidental. There is seldom a difficult assignment in which at least one pupil does not miss in the second test some word which he spelled correctly in the preliminary test. The study period following upon this test is again adjusted to the needs of the individual. The final test gives the measure of success for the week's work and sets the special tasks for those who have not perfected the learning of all words assigned for the week.

Some provision for review tests and for the re-learning of words missed on this test must be made. One way of doing this which is easy to administer is to give the test on Wednesday over a list which has been taught some weeks before. The test should be followed by a study period on Thursday and a final test on Friday. For administrative reasons the writer has chosen a month as the time which should elapse between the first week's learning on a list of words, and the review. Whether the interval be one month, two months, two weeks, or any other period of time, the principle is the same. Certainly, review is needed. It should be adjusted, of course, at all times to the individual needs of the members of a class.

A week's assignment involves some waste of the time of children of unusual spelling ability. It has the advantage, however, of being relatively easy to administer, and the further advantage of not discouraging the poor speller (who is often above average in intelligence) by confronting him at one time with a very large number of words which he cannot spell. A careful study of a month's assignment or a term's assignment as a unit shows clearly that, if pupils are not to be discouraged and if they are to have an easy means of marking progress, the whole list of words must be broken up into smaller units. This may be done by dividing the list, regardless of whether or not the word has been misspelled, or by making each child's units on the basis of words which he actually has missed in the preliminary tests. A convenient unit is ten misspelled words. This is the unit used at Winnetka.

With trained teachers, working under supervisors who understand the administrative difficulties involved in individual instruction, and with materials especially adapted to the method, it is possible to use a term's work as a unit, allowing each pupil to progress as rapidly as he can. With a term's assignment, the teacher must be particularly careful to provide re-tests essential for delayed recall, as well as to separate the units of work in such a fashion that the child will not be discouraged by the size of the task ahead of him. There is a very great advantage in dividing the work so that the child gets at intervals the satisfaction of having completed a unit of work. This is amply provided for in the Winnetka plan.

Whether the unit of assignment be a week, a month, a term, or the entire word list, the teacher is confronted with the problem of what to do with the child who has completed his assignment. This problem will be discussed later in this article under the heading: "Possible types of adjustments to students who have completed their assignment."

3. *Learning how to study spelling.* One of the first adjustments to be made in individualizing instruction in spelling is to teach the child how to learn to spell a word. This makes him independent of the teacher or of his class. The method given in the *Eighteenth Yearbook*, Part II, Ch. III, exemplifies an attempt to formulate such a study procedure by basing it upon experimental evidence and by testing it out under the conditions of classroom instruction. It is interesting to note that, although spelling has had the benefits of an experimental attack over a period of many years,

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there is still no evidence to show that students above the average in general intelligence should have, in spelling, a method of study particularly adapted to them, though there is some evidence to show that students who learn to spell easily may shorten the procedure which is necessary to thorough learning on the part of less gifted students.

Children who are above the average in mental ability, whether they are superior in spelling or not, may be interested in increasing the efficiency of their methods of studying spelling. Because of the great amount of research which has been done in determining the most efficient methods of learning to spell, we can now propose to these pupils a method which, with reasonable industry upon the part of the pupil, will guarantee a satisfactory accomplishment. A fair amount of interest in methods of work may be regarded as a minimal essential in spelling. A keen interest in doing one's work with the maximal efficiency and an inquiry into the principles involved in efficient study constitute a substantial enrichment of the course of study.

In a similar way, he will be interested in the research by which a practical word list has been made possible. The pupil's attitude toward the word list is changed when he realizes the scientific care with which the list has been made. Some insight into the nature of this research can be gotten by having the pupil analyze a letter or two, tabulating the frequencies of the words. After such an analysis, the statement that five million running words of correspondence have been tabulated, impresses the child with the significance of a word list which has been selected with such care.

POSSIBLE TYPES OF ADJUSTMENT TO STUDENTS WHO HAVE COMPLETED THEIR ASSIGNMENTS IN SPELLING

1. *Should the student of superior ability in spelling, who has finished his assignment, anticipate the advanced work of his own or even of succeeding grades?* In the "Winnetka Plan" the pupil anticipates the advance assignments for the remainder of the term only. In such a plan the entire word list for the term may be regarded as one large task, even though the list is divided by advising the student to study, in units of ten, the words which he has missed

on the preliminary test. Each student proceeds to learn this list as rapidly as he can. The students help each other in giving out words which have been missed on preliminary or other tests. The teacher takes up and corrects these test papers each week. The plan involves many difficulties of administration, and should not be undertaken except under the guidance of some one who understands how to overcome these difficulties. In the case of classes where the unit of assignment is a week or a month, the anticipation of advanced work also involves practical difficulties in administration, since, as at Winnetka, pupils must work in pairs in order to pronounce the words to each other in tests and to assist in correcting papers. Any student who is interested in anticipating advance assignments will find his spelling slightly improved through the additional review he gets at the time the advanced work is reached by the rest of his class. Since he is a superior speller, the additional review is little needed and is, for the most part, a waste of time. It seems probable that anticipation is not a solution of the problem of adjusting the course of study in spelling to the student of unusual spelling ability, unless some such plan as that worked out at Winnetka is used. Those who adopt this plan should keep in mind that Superintendent Washburne advises against allowing the students to anticipate the work of more advanced classes, because of the administrative difficulties involved in such a plan. This advice is undoubtedly sound.

2. *After thoroughly learning the four or five thousand words which are now regarded as a fundamental list, should a student learn words less frequently used?* It may be that the pupil who is gifted in spelling can learn ten thousand words to perfection. This additional task is not at all the same as doing more addition problems after the pupil has developed satisfactory ability in addition. Even the average individual needs to know how to spell more than four thousand words, and yet four thousand words make up 98.7 percent of all the running words that have been found in correspondence. The following table furnishes the basic information which is needed in considering the feasibility of expanding the word list for pupils of unusual spelling ability. It is based on the data found in the analysis of approximately 1,000,000 running words of

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correspondence. It should be read as follows: 100 words, with their repetitions, make up 58.83 percent of the words one needs in writing, etc.

Different Words in Order of Frequency	Percentage of Total Running Words Tabulated
100	58.83
500	82.05
1000	89.61
1500	93.24
2000	95.38
2500	96.76
3000	97.66
3500	98.30
4000	98.73
4500	99.00
5000	99.20
5500	99.33
6000	99.46
6500	99.53

These percentages will be decreased very slightly in a table made from similar data from the 5,000,000 running words which have now been tabulated. It will be seen that, after 1000 words have been learned, each additional 1000 words learned adds but a fraction of a percent of the running words which the student will need, and that the size of this fraction necessarily decreases very rapidly with each succeeding thousand. The law of diminishing returns operates so strongly in the study of words beyond the fourth or fifth thousand that it seems best to leave the spelling of these less useful words to such incidental learning as comes from the correction of spelling errors in the papers written in connection with other subjects. In case the fifth thousand most useful words are taught, they should be marked plainly as a "supplementary list."

3. *Should the capable speller spend his time upon definitions, roots, prefixes, and suffixes?* This, of course, means dictionary work and gives an accurate control of a fundamental vocabulary which is very much worth while. If the word list which a child is studying has been properly graded, he should know at least one common meaning for each word in his assignment. This knowledge stops far short, however, of the much more perfect control which would

be obtained through this dictionary study. The study of definitions, roots, prefixes, and suffixes is a valuable enrichment of the course of study in spelling and is administratively feasible.

4. *Should the capable speller learn the pronunciation keys?* An accurate understanding of these symbols constitutes an essential skill of permanent value and is certainly feasible as a means of enriching the course of study in spelling. Since accurate pronunciation is an important factor in learning to spell, the better use of the dictionary, which is made possible by an understanding of the pronunciation symbols, should cause some improvement in spelling ability.

5. *Should the capable speller be released from the study of spelling altogether so that he may undertake the preparation of assignments in other studies in which he is interested, or less proficient?* This is entirely feasible if the pupil is carefully supervised so that the time so liberated is profitably used. Where the unit of assignment is a term, as in Winnetka, this adjustment can be made with greater administrative ease, since all the free time comes at the end of the term. On the other hand, there is a value in the satisfaction which comes to the student, who, as a result of learning his week's assignment has, periodically, free time to devote to other interesting or necessary tasks. Teachers find this free time, distributed throughout the term, very useful in assigning remedial work to students who are deficient in some other subject. It is better to give such remedial work when it is needed rather than to delay it until the end of the term.

This is probably the best adjustment to make in the case of students who have completed their assignments. If a student so released from the spelling period does not need remedial work in other subjects, his time will probably be best used in dictionary study, in the learning of pronunciation keys, or in perfecting his methods of work.

CONCLUSION

Either the plan worked out by Superintendent Washburne at Winnetka or the plan devised by the writer may be adopted as the basis for making adjustments to pupils of unusual spelling ability.

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Both plans are based on experimental research and have proved their worth in public school systems. The two plans are very similar in the following respects:

1. Both use a scientifically determined word list. The basis used for making up the Winnetka list is not quite the same as that used by the writer, but the first 2000 words in the one list are practically identical with the first 2000 words in the other list.

2. Both use a preliminary test, dictated by the teacher, to show each pupil what words he needs to study.

3. Both enlarge the unit of assignment.

4. Both excuse any student who has learned his assignment from further study of that task, except to correct errors made in future review tests.

5. Both use a rigorous plan of testing to show each pupil whether or not he has learned his assignment.

6. Both provide for a substantial amount of review.

7. Both plans put considerable responsibility on pupils in correcting tests during the first week of learning, but require the teacher to check up on these corrections each week.

8. Both plans provide a definite method of learning to spell.

It is significant that two investigators, working for the most part independently, should arrive at solutions so nearly identical in principle and so similar in practice.

The chief differences between the two plans are:

1. In the Winnetka plan each pupil progresses through the term's work as fast as he learns the words, while in the writer's plan the class is held together by assigning a definite list of words to be learned by all during each week.

2. In the Winnetka plan the free time of the child who has completed his work all comes at the end of the term, while in the writer's plan his free time comes with the completion of the assignment each week.

3. The writer's plan is somewhat simpler to administer, not only because it is more similar to the classroom procedure to which the teacher is accustomed, but also because it eliminates a large amount of the pupil assistance required in the Winnetka plan.

CHAPTER VI

THE CURRICULUM FOR GIFTED CHILDREN

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Introduction

It is probable that there are close to 500,000 boys and girls in our elementary schools whose *verbal intelligence* as measured by a Binet I.Q. is above 125. It is also very probable that there are a half million more of like intelligences in our high schools. Altogether American public schools are now responsible for the training of upwards of one million children of distinctive mental ability.[1] As the materials of instruction are now constituted, most of these children either have skipped or can skip a grade—some of them two or even three grades. Such children have been so conspicuous in the processes of the conventional school that they have come to be called "gifted." They have such "abstract intelligence"—that is, such ability to manipulate ideas expressed in words—that they graduate from the high school at the age of 15 or 16. With their unusual verbal mental ability they take school and college honors. They tend toward academic occupations, at least towards occupations demanding analytical ability. Many will teach in school or college.

Some of these verbally-intelligent thousands in our schools—perhaps between a third and a half (I personally subscribe to the smaller proportion)—are not only "gifted" in verbal intelligence—they possess distinctive social qualities also. These belong to another army of "gifted" persons for whom the school is responsible—our *socially* talented. These *socially* gifted pupils are now the "leading citizens" of a school or college; it is probable that later in life they will also be the "leading citizens" of some community, small or large. In school they are now the managers of teams, the presidents of classes, clubs, literary or debating societies. As adults later some will become the mayors of towns, the governors of states, executives in business, presidents of chambers of commerce, organizers of Rotary and Kiwanis clubs.

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[1] I trust that those who read this chapter will have the goodness not to raise any issues of "democracy." Please keep in mind that we are discussing only *one* problem—*what* shall we teach our gifted children? Whether it is the proper function of schools in a democracy to segregate gifted children and to organize separate curricula for them is not being debated.

Just how much these two legions of gifted people—the verbally intelligent and the socially intelligent—overlap we cannot now say. I incline to the view that the correlation between the gross ability "to get along with people" and the gross ability "to manipulate verbally-stated ideas" is low; that is, that many verbally gifted are socially mediocre or socially retarded, and *vice versa*. For our present discussion, however, it is not necessary to know; our immediate concern is to recognize that we have an obligation to a large body of pupils in our schools who are "gifted"—some in verbal intelligence, some in social qualities, some in both.

But there are types of gifted persons other than these two. We must not forget the mechanically gifted nor the esthetically gifted. It cannot be doubted that there are in our schools upwards of a million children who are talented in these two general directions. An interest in mechanical manipulation coupled to mathematical and scientific ability will make out of some of the "mechanically gifted" the Steinmetzes, Marconis, Langleys, Howes, Goodyears, Bells, Morses, Edisons of the next generation. Some of these will invent methods of research, others will assemble facts in new ways and deduce original generalizations, thus adding to the sum total of technical and scientific knowledge. Some will engage in research in medicine or physics, while others will direct laboratories and institutes managing men in addition to managing ideas.

Talent, however, has most frequently been thought of in connection with the esthetic or appreciational activities—music, dancing, painting and sculpture, writing. People are gifted in their ability to appreciate and to perform in these directions as well as in the other three we have mentioned. We are not so confident about the distribution of esthetic abilities as we are of verbal in-

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telligence—measurements are inadequate as yet. The few measurements that we have in music—Professor Seashore's for example—teach us that differences between people in the fundamental musical abilities are far greater than are general physical or mental differences. There is good reason for believing that that is also true of dancing, drawing, painting, and perhaps to a lesser extent of writing. So, whether we have one thousand, one hundred thousand or one million esthetically "gifted" young people in our schools, one fact is clear—these young people will be the makers of the American culture of the next generation. Whether America becomes a true interpreter of art in a growing materialistic and mechanical world—whether she raises the level of culture from where Europe in her present *impasse* and sharp decline has dropped it, will depend very much indeed on these "gifted" boys and girls.

The four chief divisions of our army of gifted youth are now arrayed before us: the verbally intelligent, the socially intelligent, the mechanically intelligent, the esthetically intelligent.

Two facts stand out from this introduction. First: we must broaden our notion of talent, of "giftedness," to include many aspects of culture, for the school is responsible for the development of all the abilities in a child. Second: the number of children of conspicuous ability in our schools is probably large. Whether it is one million or ten thousand will depend on one's definition of "giftedness." Certainly, the "gifted" themselves are graduated in ability down from levels of true genius—shall we say one in a million—to those of conspicuous ability or talent—shall we say one or even more in a hundred?

Are Public Schools Organizing Classes for Truly Gifted Children?

As public school classes for "gifted" children are now organized they include much lower levels of ability than even "talent." Such classes are composed of pupils who range in I.Q. from 110 or 115 to 140 or more. Hence these classes merely are the better third of our pupils. So far as the Society's Committee has been able to discover there are very few separate classes for children of I.Q.'s tests and teachers' judgments of mental ability. Children who show marked proficiency in arithmetic, reading, history, geography, etc., (all verbal activities of the school) are permitted to take like work in a grade higher, occasionally in classes two grades higher. Pupils having finished given units of work are permitted to do more examples and more difficult ones in arithmetic, algebra, and geometry, to read more extensively in history, literature, and the social sciences, and to do more experiments in science. In all our correspondence there is almost no reference to the formation of groups on the basis of esthetic intelligence, of superior mechanical ability, of leadership or of other social traits. There are a few striking exceptions to the rule to which I shall refer. In the main, it is clear that the instruction of the superior young people in our schools is organized on the basis of verbal mental ability and is designed to give training in verbal skills and activities. Keeping this in mind, we are ready to consider in what the instruction consists.

WHAT MATERIALS OF INSTRUCTION ARE PUBLIC SCHOOLS NOW PROVIDING FOR BETTER-THAN-AVERAGE PUPILS?

By correspondence with school people in all parts of the country the members of this Committee have collected data with which to answer this question. The officials of more than one hundred cities have described their provisions for superior pupils; about fifteen have supplied detailed exhibits which illustrate subject matter and methods of teaching. It is possible, therefore, to present a fairly clear picture of the current situation.

Two things are done for children who are better-than-average in our public schools: they are either promoted more rapidly or they are given a course of study generally referred to as "enriched."

A. The Conventional Method of Providing for Superior Pupils: To Advance Them Rapidly

This is the conventional American method, because it is easy, it is inexpensive, and it can be done under the administrative handicaps of our present system. Since the beginning of 'graded' schools, rapid promotion, or 'grade skipping,' has been practiced. It is the administrator's practical solution for a very knotty problem—that of providing individual and group activities for exceptional children. It is frankly regarded by all as a make-shift, not as a real solution for the problem.

It is based, of course, on the assumption that all pupils should study one curriculum; that, once having completed any given year's increment of that curriculum, they should proceed at once to the next. And that, in turn, presupposes that one curriculum can be constructed and has been constructed which will give pupils of widely varying interests and aptitudes opportunities for complete development. Of course, this is a patent fallacy.

The acceleration of superior pupils takes many forms. In Everett, Massachusetts, it is based on a 'credit for quality' scheme. Pupils receive additional credits for a high quality of work and are permitted to finish four years of high-school work in three years. In Meriden, Connecticut, acceleration is practised in the high school and the standard four-year curriculum is disposed of by the brighter pupils in three and a half, occasionally even in three years.

It is not only in the high school that rapid promotion is resorted to. In Louisville, Kentucky, the fourth, fifth, and sixth grades are completed in two years by superior children and in the seventh and eighth grades high-school credits can be accumulated in order to complete the academic curriculum more rapidly. Plainfield, New Jersey, recognizes bright pupils by letting occasional ones do the work of the fourth and fifth grades in one year. In Baltimore three semesters' work is sometimes accomplished in a year. In Boston particular schools equal Baltimore's record. Denver reports that the curriculum of two semesters is regularly completed by these superior pupils in one semester. Seattle, although skeptical of the wisdom of rapid promotion, reports that its experiments are convincing that the brighter children can do the work in half the time which the rank and file require. In Mobile, Alabama, the school system operates a summer session. By hard work in this summer school it is possible (as shown by the fact that boys and girls do it) to skip an entire grade. In Denver nine and one-half weeks of advanced work enable a pupil to 'skip' half a grade.

Of course 'grade skipping' is not a recent invention of reformers interested in gifted children. It has been a stock device of school administrators burdened with overcrowded rooms for two generations. Many teachers and officers managing our schools to-day were themselves among those who 'missed' sixth-grade geography and grammar, or the first half of American history in the seventh grade owing to grade skipping.

There's no doubt about it. The experience of school men is convincing of the fact that 'X,' or 'rapid,' or 'fast moving' classes—the better third, say, of our pupils—complete the standard conventional curriculum in half the time which has been allotted to it. If more evidence is needed, one has only to quote from our files—Everett, Washington; Kansas City, Kansas; Cicero, Illinois; Richmond, Indiana; Montclair, New Jersey; St. Louis, Missouri; Newark, New Jersey; Grand Rapids, Michigan—these and many more report actual experiences and convictions. Some have accelerated pupils in the middle grades of the elementary school; others have found that they gain time in the senior high school; still others report a similar condition for the seventh, eighth, and ninth grades.

What is the total situation then? What proportion of our schools are taking care of exceptional pupils by 'accelerating' them? It is difficult to generalize from our samples of the country's practices. A hundred school systems is a small fraction of the American schools—yet our hundred are representative of various parts of the country and their practices probably reflect pretty well the drift of things. If we were pressed for a statistical set-up of the current situation, we would say: about three-fifths of our schools now provide for superior pupils by rapid promotion. Approximately one-fourth hold them within the grade normal for their ages and 'enrich' the curriculum; the remaining sixth try to combine the two methods.

Let there be no mistaken ideas about one phase of the situation, however: not all of those who have tried 'acceleration' approve of it or now continue it. Some are emphatic in their disapproval of the plan. From Richmond, Indiana, comes the report that acceleration has been practiced for superior pupils for the past three years. During that time successive classes did complete three years' work in one and a half years. Yet the plan is being discarded and strenuous efforts are being made to 'enrich' the curriculum sufficiently to engage properly the interests and abilities of the superior pupils.

Seattle, Washington, also tried rapid promotion for exceptional pupils and found it wanting. It led to a saving of time, but the officials believed that superior ability merited a course better fitted to the abilities of these gifted pupils.

What Kind of a Curriculum Does Rapid Promotion Imply for Superior Pupils?

Let us make no mistake about the matter. Rapid promotion merely means that pupils of unusual verbal intelligence are permitted to do the work of a thoroughly verbalistic curriculum in fewer years than normal, or 'average,' pupils require. It implies that they study the same geographies in the fourth to seventh grades; that they get their control of arithmetical processes by going through the same steps of development in the same "three books;" that they manipulate equations and prove theorems from the stock courses in algebra and geometry—only they do all this in less time. That is, rapid promotion does not imply that the standard curriculum has been modified to fit the superior abilities of these children.

It is no doubt possible for the better third of our pupils to master the present eight-grade elementary curriculum in five years. The best tenth could do it in three school years, starting at, say, the age of seven. Whether they should be permitted to is seriously open to question. That we shall discuss later.

Accelerated Pupils Are Frequently Permitted to Elect Subjects of Higher Grades

Another make-shift commonly resorted to is to keep superior pupils in the grade normal for their chronological age and to permit them to do the work of particular subjects which are catalogued for higher grades. In many cities seventh- and eighth-grade pupils can take algebra or Latin or constructive geometry. Oakland, California, in addition to providing them with special investigating work, permits further study in languages and in music (thus providing for other than purely intellectual activity). Louisville gives some of her exceptional pupils in the fourth, fifth, and sixth grades an opportunity to begin the study of French. As they come to the seventh- and eighth-grade studies, additional work is taken from the high-school level. In a middle western city junior-high-school accelerates are permitted to "take one half year of Latin or algebra and receive a half unit of credit in civics and English and sewing also" (why this is done is not stated). In another city exceptional ability in managing the academic course rapidly, provides superior pupils with the opportunity to take commercial training, to study manual training and domestic science or French. And if that is not a sufficiently tempting bait for talent to expend its last ounce of effort upon, another city system provides French, tennis, library instruction, typing and hygiene! We predict a typical twentieth-century rate of travel over the conventional curriculum of that city!

In all these schemes there is no proposal to modify the existing curriculum. One course is prescribed. All take it, some easily, some haltingly. Some do it twice as fast as others. As one studies practices of these sorts one begins to believe that there must be something heaven-sent in this standard curriculum of the American public schools!

B. There Are Many Schools, However, Which Are Earnestly Trying to Enrich the Curriculum for Superior Children

If you ask a school administrator or teacher what modifications are made in the regular course of study for 'X,' or superior, sections, the chances are much more than even that the reply will be "we enrich the course of study."

As I turn through the Committee's correspondence, I find such statements as these:

"Beginning this year, however, we have undertaken in a small way to provide an enriched curriculum on the project basis for the pupils who are found to be in the upper quarter so far as intelligence is concerned."

"Our policy is to give to the gifted child an enriched curriculum and, also, an opportunity to save some time."

"We try to have at least three fairly distinct courses of study for the three general grades of ability."

"The strong group has a greatly enriched body of matter."

"We are now studying this problem and are inclined to believe from present data that the better way is to provide additional work for such children in the normal grade or at least a combination of enrichment of the course and rapid promotion."

"In general, the tendency seems to be in the direction of furnishing a somewhat enriched course of study, rather than in the direction of securing more rapid advancement for the children in such 'A' sections."

1. *What Is "Enrichment" of the Curriculum?*

Let us see. Heroic attempts are being made in quite a number of our public school systems to work out a curriculum of materials and activities which will be interesting and stimulating to boys and girls of superior ability. Progressive school people are trying to "enrich" a uniform curriculum with which they certainly are not satisfied. Enrichment takes several different forms. Let us examine them a bit.

(1) In many schools it means simply *giving more work like that of the conventional course*. In cities which follow this method the "brighter pupils cover more ground." In geometry "they do more originals." They work more word problems in arithmetic. They translate more pages in French. "The rapid sections do more reading outside of texts, a more detailed study of topics." In vocational civics the "rapid sections make a wider study of fields open to women, with more time on the professions requiring long training and above average ability." In commercial arithmetic "the rapid-progress classes are given more content—reasons back of 'short cuts' and the like." "In stenography the rapid-progress classes learn to take dictation at the rate of a hundred words a minute, while the slower group reach eighty to eighty-five."

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In Latin and French "the rapid progress groups read much more and have much greater opportunity to speak and write."

Some schools enrich by adding whole new units of materials. In *Jackson*, Michigan, Opportunity Rooms under the direction of Miss Helen Davis cover the regular history course consisting of Greek and Roman history and in addition obtain a much larger and more systematic background. I quote a bit from her outline to illustrate the method.

"In the regular course of study, Greek and Roman History is given in the 5th and 6th grades. The text (*The Story of the Old World*, Elson and Macmullan) is in the hands of the teacher, who reads the story to the children. This text begins the history of Greece with the Siege of Troy.

"In the Opportunity Rooms we began at the dawn of history and studied pre-historic man, the cave dwellers, early Egyptian, Phoenician, and Babylonian history, and the contribution of each to civilization. The principal text followed for this part of the year's work was Smith Burnham's *Our Beginnings in Europe and America*. When the class was ready to begin Greek history, supplementary material was added. In connection with this part of the history course, the children wrote and dramatized a story, "The Carrying Away of Fair Helen."

It is very probable that many cities modify their courses for superior pupils in some such way as this. They widen the scope of the field covered by the slower pupils. For example, the brighter pupils study "biography" when the slower ones do not. They read supplemental books in addition to the basic texts required of all. They meet entirely new subjects to which normal pupils are not introduced—geology and Latin and algebra and social science and the like.

(2) A second modification of the instruction which progressive schools are making for the brighter pupils is in the *method of presentation*. In some schools, although the scope of the work covered by the normal and by the superior pupils is much the same, the method of presentation is quite different. In science, for example, "the same number of topics are taken by the two groups, but more time is spent by the superior group in suggesting and

discussing possible methods of performing experiments, in applying the principles illustrated by the experiments, and in suggesting other experiments that might follow, while a similar amount of time is spent by the inferior group in review work, in following the slow and careful explanation of the teacher and in working out simple problems adapted to their comprehension. Generally speaking, one group is superior to the other in quickness of observation, in wealth of associated ideas, in power of discrimination and in reasoning ability, and an attempt is made to adapt the instruction to this difference. There exist, however, considerable individual differences among the members of each group, so that stimulus and variety are not lacking."

Another observing school man remarks:

> "The 'fours' (retarded ones) are slow to concentrate, need much illustration in the presentation, waste time in using a principle or attacking a problem, need much drill and constant supervision.
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> "The 'ones' (superior pupils) have a greater degree of concentration, waste less time, grasp an idea at its first presentation, read faster, need less drill. They can do more work in a given time . . . .
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> "The 'fours' are given more careful presentation; more pains are taken to discover a proper starting point; more detailed instruction is given; students are led through the first steps of any process; and they are given much drill. They need continual supervision and great care taken to be sure that ideas are accurate and that correct methods of procedure are followed.
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> "The 'ones' are comparatively self-directing. Lesson assignments are suggestive in form; less detailed direction is needed. More supplementary material is used. Class discussion is in the nature of comparison of ideas, rather than an effort to see that a correct idea is acquired by the student. Method is varied in such a manner as to let these students go 'on their own' to a large degree.
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> "The variation between 'one' and 'four' groups occurs in less degree among all the groups. Sectioning as we are doing helps to get students of a similar degree of power and type of thinking together, so that the effort of the class is more nearly what is needed for each student."

It appears, therefore, that schools are recognizing distinction in modes of thinking on the part of bright pupils and are adapting methods to them. Here are additional illustrations: "Accelerated groups use more advanced books, are encouraged to find references for themselves." They are "urged to make free use of library." "Teacher supervises preparation, but actual study work is done by the child." Accelerated groups "have longer assignments, perhaps not including more general ideas, but an elaboration of these ideas."

Class exercises tend to be conducted for the rapid groups "largely as socialized recitations, encouraging questions and discussion." Superior pupils carry on many special investigations, making individual reports, "some involving quite careful research."

In the *Detroit* public schools the Department of Instruction, working under the direction of Mr. S. A. Courtis, has evolved tentative modifications of the curriculum for pupils of varying ability. Three groups are formed and are called 'X,' 'Y,' and 'Z' classes, respectively. Mr. Courtis reports the following differences in treatment of the X (highest) group and the Z (lowest) group:

Differences in Treatment of X and Z Groups

"I. Teacher procedure with X Group
  1. Give complete generalized abstract statements of fundamental principles.
  2. Provide opportunity for questions from pupils until statement is understood.
  3. Present a desirable possible achievement which will involve application of principles.
  4. Provide opportunity for independent attempts at solution with the teacher's assistance.

"II. Teacher Procedure with Z Group
  1. Analyze principles to be learned into essential related basic experiences.
  2. Present each basic experience as an entirely separate experience worth while in itself.
  3. Give generalizations based on these experiences in the form of rules of procedure.
  4. Practice the children in the application of these rules to specific problems.
  5. Test power of children by giving them as many problems as needed for independent solution."

In *Cleveland* a systematic attempt has been made to segregate pupils of I. Q. of 120 and above, and to provide a curriculum adapted to their superior abilities. Assistant Superintendent Herbert D. Bixby has prepared a statement of the method of handling these pupils. We quote it in full:

"It was early determined that the object of instruction should not be to speed up these children, but rather to enrich and broaden their course of study. However, it was very soon found to be extremely difficult to retard their progress to the rate of the ordinary classroom. No particular attempt was made to do this, and as a consequence, some time, probably from a year to two years, will be saved during their elementary-school term, but the emphasis has continually been placed and kept on enrichment.

"It was very soon seen that if these children were to be given the opportunities apparently desirable for this type of child, advantages must be offered them that were beyond the scope of any public school system. This difficulty was overcome by the formation of a committee of interested citizens who guaranteed to offer further advantages to these children and to finance extra opportunities when this seemed desirable. This committee, sponsored by the Women's City Club of Cleveland, has been of inestimable help in the work, both in the above-mentioned manner and in maintaining the interest of the public in the experiment.

"At the beginning of the following school year, interest had been aroused to such a degree and the problem had progressed to such a point that it was very easy to form other classes at various points in the city. To-day there are upwards of one hundred children in six classes from the second to the sixth grades, receiving special instruction, and this number could easily be increased were it thought advisable to do so at this time. In addition, one class entered junior high school this fall and is continuing to receive special attention.

"Several interesting things have been noted since the work began. For instance, when children are placed in these special classes after having spent the first part of their school life in the classroom, it takes from two to six months to overcome habits of indolence that are usually present, and to arouse in them interest in their school work sufficient to cause them to pursue a difficult task through to the end. This condition is probably due to the influence of the methods used in the ordinary classroom upon children of superior intelligence. It is also apparent that children of this type have little interest in the drill subjects or in that part of any subject which is comprised of drill work. Inasmuch as a certain amount of drill seems necessary to establish habits of thought and fix certain facts, probably an increased amount of effort is required on the part of the teacher to get this type of child to do this particular kind of work. It has further been noticed that this particular type of child has great power to originate and carry through the investigation of a subject when once his interest has been enlisted in a problem. Material is being gathered for further generalization of this nature, but the above will serve as interesting examples.

"The problem of enrichment is a difficult one, and one that will vary, as conditions under which classes are originated and situated must necessarily vary. To begin with, all attempt to follow the regular course of study was eliminated. A free road was opened for the teaching to these children what they seemed to need. Special instruction has been given those children showing special talent in art or music. In French instruction has been offered with particular emphasis placed upon the conversational side of the language. Effort has been consistently made to bring the children into contact with various activities of this locality, and to make these activities serve as a basis for further classroom instruction. To this end excursions have been made to many industries. Many of the civic activities of the municipality and of the county have been investigated. The various museums of the city—Art, Natural History, etc.—have been visited. Performances in the theaters, when they were suitable for children, have been attended, and concerts, lectures, etc., have been made the basis of illustration and instruction in classes. The problem of enrichment has by no means been solved, but these classes are serving as a means of gathering valuable data, and as time goes on, should give us further and valuable light upon this subject.

"Nothing has occurred during the experiment that would lead us to believe that segregation of these children is detrimental to their welfare. No egotism has appeared that cannot be successfully overcome by a teacher with common sense. The advantage of belonging to a homogeneous group with common social interests is apparent, and the fact that these classes are located in the regular school buildings preserves for these children contacts with many other children of various types which tend to counterbalance any feeling of false superiority which may arise. The idea is constantly held before the minds of these children that inasmuch as they have more to give, more will always be expected of them.

"It is, of course, not known as yet what the conclusion will be, but enough progress has been made to warrant the continuance of the experiment and to expect that something definite will be contributed toward the training of leaders in all the various forms of activities necessary to efficient and successful national development."

2. *Examples of Enrichment Through the Use of Projects*

But some school men have seen the problem of curriculum-making for superior children very differently. To them, providing "more work and more difficult work" or "studies of a higher grade" is not an adequate solution. These people are concerned with the complete development of children and base the activities of the curriculum on driving dynamic interests. In the educational jargon of to-day such people organize "projects." They strive to utilize the interests of children by "life situations" in the school.

One of the best examples we have found is the work of Mr. Benjamin B. Rohan, Principal of the Second District Schools, *Appleton*, Wisconsin, referred to in several chapters of this *Yearbook*. Mr. Rohan and his staff have formed among their pupils in the seventh and eighth grades nine “interest clubs.” These consist of a Teachers Club, for those who think they might like to become teachers; a Forestry Club, for the study of forestry; a Newspaper Club, for those interested in running school newspapers; an Auto Mechanics Club; a Radio Club, an Industries Club and an Orchestra. Let Mr. Rohan tell the purpose of such clubs in his own language:

> “The purpose is to give the bright children something to do in which they have a genuine interest, so that during their spare time gained in the classroom they will not be without work.
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> “We aim to stimulate purposeful reading. The clubs meet for a forty-five minute period once a week. During this time the interest is so aroused that it carries back to the classroom, where books pertaining to the interests are available. When the child has any spare time, he may have access to them. Problems are set during the meetings of the clubs, so whenever a bright pupil is free from his regular class work he may work on a personal problem. He always has something to do, and it is something he likes to do.
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> “All of these clubs meet after school hours and the children are in them because they chose to be. That their interest is keen is proved by the fact that there is a high percentage of attendance.
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> “One of the basic aims of the interest work is to find each child's interest and to set him to work studying it. By so doing, we may get such a grip on him that he may do better school work and even improve considerably in his conduct.
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> “What a joy it would be if our students eagerly entered into all our classes with a vim and down in their hearts experienced the feeling of satisfaction which comes from tusseling with a piece of work that one enjoys mastering! What a joy it would be if we could connect our teaching of mathematics and history and English and geography, etc., with a subject of burning interest to the child!”

How do these clubs work? I quote from a description of one:

> “The newspaper club was the most successful and is a splendid illustration of what interest work can mean and do for children. Four girls who liked this kind of endeavor worked in pairs and each pair published a paper, one the *Lincoln Trumpet* and the other the *Lincoln Tattler*. This was splendid business training, because the proceeds from the papers had to pay the cost. Stencil and paper cost money and so much so that a copy of either paper costs two cents; as much as the large Milwaukee and Chicago papers. To meet this expense ‘ads’ had to be sold and circulation secured. This was accomplished, but by no small effort. So successful were the girls in selling

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their papers that they had in the neighborhood of one hundred customers, among whom were three people from our State Department of Public Instruction. 'Ads' were solicited from people in school who had things to sell or services to offer. One pupil gave aesthetic dancing lessons—she bought space; others advertised handmade flowers, a washing machine, a rocking chair, a mattress, etc. This was all good business.

"Another feature was the generalship and organizing ability displayed. A corps of reporters had to be on the job to gather the news from all departments of the school. This news had to be sorted and devised so as to keep the personal element at a minimum. Yet, the reporters had to be kept busy and interested. This was done, for neither paper ever lacked news. Again, the papers had to sell, so they had to be interesting. This was done by having in each issue something about all parts of school life. The girls waded through volumes of reading material to find interesting stories and funny jokes, and here came in much training for selection, rejection, amending, and judging. Each week an original story by one of the editors appeared. To do this alone required no small amount of work. One of the editors became so interested in dog stories that she wrote to Mr. Terhune, the dog expert, regarding one of her problems and he wrote her a splendid encouraging answer. This incident she will never forget.

"After all the material was gathered for each issue, it had to be arranged and stencils made. For one paper they were made in the school office and for the other at a private home. Then they were run off on the school mimeograph.

"So eager were the scholars to get these papers that the demand usually exceeded the supply.

"Again, these papers were a decided help in improving the morals of the school. The editors did not hesitate to call attention to any abuse of the property or privileges and frequently the teachers' attention was called to something which otherwise might have passed unnoticed. If the principal wished to send a message to all the pupils, the papers served as a splendid medium. They urged our boys to be manly in our athletic contests; they urged hiking clubs, bicycle clubs, and baseball teams for the girls. All of which were formed."

One cannot read Mr. Rohan's statement of the work of these Interest Clubs in Appleton without recognizing that such a supplementing of the curriculum comes close to providing "life situations" within the school. A plan like this provides for the development of abilities other than those of verbal intelligence. The clubs are varied enough to offer an appeal to widely different interests. Work in the clubs gives practice in parliamentary procedure. These clubs are social groups, and participation in them brings out latent qualities of co-operation and team-work; leadership and followership are both provided for. Opportunity for attacking 'real' problems of life is given. Practice in oral discussion is supplied.

There are real intellectual outcomes, also. Children's minds are sharpened by interplay one against another. Interest in some live practical problem or need stimulates new reading interests. Boys and girls learn by being 'blocked' on a real enterprise that one must have adequate information to solve problems, and that one must have thorough mastery of technique when technique is demanded. So, work like this teaches children the value of books, makes the library a place of real interest, and sends them to the study of their school courses with a more vital interest.

Furthermore, such activities as those in the Appleton curriculum provide for the many interests of boys and girls. Their social abilities, their mechanical aptitudes, and their esthetic interests and abilities can be trained as well as the fundamental verbal intelligence. It must not be forgotten, however, that opportunity to take part in these during school hours (aside from the one weekly meeting) comes only to those who complete the regular prescribed curriculum in less than normal time and the prerequisite for this is verbal intelligence.

No doubt many teachers are providing opportunities for pupils who are gifted in ability to write to develop themselves. From *Detroit* comes another fine example. Miss Anna M. Engel has submitted to the Committee samples of pupil writing done in classes for superior pupils. The stimulus is found in the organization of a 'class-book' in which are compiled essays, editorials, verse, stories, cartoons, etc. The median I.Q. of Miss Engel's classes was 118.

Perhaps the most conspicuous product that has appeared from the teaching of young writers of talent in regular school classes, is *Lincoln, Verse, Story, and Essay,* a 160-page printed publication of original writings of pupils in the seventh to twelfth grades of the *Lincoln School of Teachers College.* This publication represents poetry, essays, and stories published in the school paper, *The Lincoln Lore,* under the direction of the head of the English department of the school, Mr. Hughes Mearns. The average I.Q. of the thirty pupils whose work was selected for publication was

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124. Mr. Mearns' unusual success in drawing [illegible] young writers of talent is shown by the fact that eight of the products in the volume are cited in the 1923 Anthology of Verse. The writers, on the whole, may be regarded as 'superior' in verbal intelligence as well as in literary ability.

Two distinctly different methods of 'enriching' the curriculum have been commented upon: first, that of 'studying the subject matter itself in greater detail;' second, that of setting up 'real projects.' It should be said before leaving the subject that many schools now use informal methods of providing work for the free time of superior pupils. We find frequent statements in our correspondence that, when individual pupils finish a given piece of regularly assigned work, they are given problems for special investigation and report. On these they work alone. They 'read up' on a special problem for the purpose of reporting it to their class. They collect material for an original theme and read it later to their classmates. These are practically always problems assigned by the teacher, however, not those which grow out of real or felt needs in some 'life situation.' Hence they engage the attention of pupils with varying degrees of 'drive' behind them. Whether the children are vitally interested in them is an open question. Very likely they can *become* interested in most of them. One of the most baffling problems which we face in organizing curricula and methods of instruction is that of taking advantage of the driving purposes of children. I am convinced that at least it is *not necessary* to turn the whole curriculum into one continuing series of 'life projects' in order to engage that whole-hearted interest of pupils in school work.

WHAT, THEN, IS THE PRACTICAL PROBLEM BEFORE SCHOOL ADMINISTRATORS?

So much for the review of what the country is now doing. Tendencies stand out clearly, even from our limited sample of schools. In trying to reach a judgment as to what curriculum recommendations will help public schools most, one arrives first at this fact: *There are startlingly few classes for truly gifted children in the* *country.* Whatever is done for the very unusual child is done by treating him as a *special case.* He is promoted to a higher grade; he is permitted to 'elect' one or more subjects of a higher grade; he is permitted to make special investigations and report; he is given a more detailed and compelling treatment of the same topics. Whichever one of these methods is employed, his case is treated as an individual one. Segregation of the *truly* gifted into classes is not now practiced by public school systems.

There is, however, coming rapidly into general practice the division of pupils into ability groups. In schools where that is done the 'A,' 'X,' or 'best' group is very generally made up of the best third or best quarter of our pupils. Hence such a group usually includes some pupils who are truly gifted. Furthermore, we have seen that they may be gifted in any one of several directions. They may be unusually endowed in verbal intelligence; they may be prospective inventors; perhaps they are children who give promise of great artistic or musical ability.

In what I have to say, therefore, with respect to a practical program of procedure, it should be kept in mind that we are dealing with widely varying groups of "better than average" children and not with classes of truly gifted ones. This is not to imply that it is not now possible and feasible to organize in every school system of size in the United States classes for the truly gifted. *I believe that both from the standpoint of the development of each individual to the highest possible point and from the standpoint of the greatest contribution to the improvement of society, the gifted children in each town and city in our country should be discovered, organized into working groups, and given the most far-reaching course of training our intelligence can organize.* This includes not only those of great "abstract intelligence," but also the prospective painters, musicians, humanitarian leaders, research investigators in the special scientific fields, inventors and leaders in the mechanical professions, etc. An industrial democracy in which cultural development has not kept pace with a spectacular mechanical growth can ill afford not to spend its energies lavishly on the attempt to inaugurate such a program.

Today, however, we face the practical situation that, although our democracy has not set up that program, it has begun to move slowly in that direction. Our task at this point, therefore, is to consider what practical recommendations can be given to schools which are faced with the problem of providing a modified curriculum for large groups of 'better-than-average' children, groups which themselves are not homogeneous in ability.

A. The First Step Is to Distinguish Clearly Between the 'Skill' Activities, the Informational and Thought-Provoking Activities, and the Appreciational Activities of the School

Confining our attention first to the elementary school, it will be helpful to recognize these three fundamentally different kinds of activities and materials: first, the skill activities; second, the informational and thought-provoking activities; and third, the appreciational activities. By the skill activities I mean those embodied in such subjects as spelling, oral and written expression, handwriting, and formal arithmetic. By the informational and thought-provoking activities of the school I mean history, geography, civics, and parts of industrial and household arts and elementary science and mathematics. The appreciational activities include literature, expressional drawing, and music. What shall we say of the instruction of our 'better-than-average' pupils in these respective lines of endeavor?

1. *What Shall Be the Instruction of Superior Pupils in the 'Skills'?*

As to content, should it not be the same as the instruction of all the other pupils? There is no reason why our prospective leaders should not be expected to spell automatically the 4000 words of the Horn list which will be used by most adults in writing. In fact, the probabilities are greater that they will need automatic mastery of these words than that the great rank-and-file will. That they will need more than 4000 is true enough—a specialized vocabulary which will develop later in life and which will be learned later more effectively.

Is not the conclusion the same for skill in oral and written expression? Our leaders, of all people, are held responsible for proper control of language, either in oral speech or in their writing. Even the rank-and-file become doubtful about an 'elected leader' who cannot make them linguistically respectable before the world. But in expression, as in spelling, the task of training prospective leaders involves merely the perfection of a relatively isolated and very definite body of skills. The requirements for the skills are the same for all people, be they gifted or mediocre.

Command of the essential number habits and ability to write legibly at a moderate pace are also skills that our superior people must be held responsible for. But, as with the two preceding ones, they need no more skill nor command of a large number of skills than do the masses of our people.

These four 'skill' subjects—spelling, arithmetic, grammar, and handwriting—have until recent times consumed a large fraction of the time and energy of our pupils. Are they to continue to do so for our superior ones? It is not necessary. These skills can all be mastered in a relatively small proportion of our total school time.

To accomplish that, however, we shall need to make certain changes that have been frequently urged upon us of late. *In the first place, we should completely individualize the acquiring of these skills.* Dr. Washburne is thoroughly right. Time can be saved and the skills can be mastered more effectively by intelligent individualization. Learning to spell, to write, and to figure are not tasks for social interplay. They demand 'practice exercises;' learning is by repetition; definite stints are to be accomplished. Let us hear nothing *at this point*, then, about "vitalizing the curriculum" or about "projects." The job is, for example, learning to spell, not social argument.

Washburne himself has developed an excellent technique for doing it.[3] It runs something like this: First, determine by objective investigation of social needs (of children and of adults) what words, number processes, and grammatical usages need to be learned, and how well they need to be learned. Call these the particular goals, or objectives, of the skill part of the curriculum. Second, test all the pupils on them so as to discover in which skills each is lacking. Third, set up definite practice exercises and drill each pupil in each process until he has the desired amount of skill. Fourth, re-test periodically, at intervals of increasing length, to determine permanence of retention and give review practice exercises where needed.

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[3] See for details Washburne's chapter in this volume.—*Editor.*

Sounds mechanical, does it not? It is, but so is the task prescribed. The job before us is precisely the mechanical one of determining what skills need to be mastered by all, or relatively all, persons, and of perfecting them with the utmost possible dispatch.

What does such a procedure mean in the education of superior children? Merely that in a relatively small fraction of the time of each school grade through which they pass these superior children will attain the desired mastery of the necessary skills. The published reports of Washburne and others supply evidence for such a statement. There is no doubt any longer that the definite individualization of the skills and the adoption of a technique something like that outlined will result in the perfection of the necessary skills by even the mediocre pupils in one-half to two-thirds of the time now devoted to them. For the 'superior' pupils it is a safe generalization that all can master the skills in from 30 to 40 percent of the present amount of time allotted to them.

Remember that this is not a theoretical guess, it is an estimate based on the accomplishments of children in public schools. It means, then, that *from 60 to 70 percent of the time of superior children which is now devoted to spelling, formal arithmetic, handwriting, and grammar can be saved for something else.* Sixty to seventy percent probably means at least an hour a day.

Saved for what else? More spelling? More arithmetic? More proficiency in handwriting and in grammar? No, saved to be employed in a far more effective manner. Saved for the development of each child along the line of his special bent.

At this point it is important that we consider each of these superior children as an individual endowed with special abilities and specialized interests—some in music, others in art, in literature or mechanics or in the study of community, national, and international affairs. Just as the interests and abilities are specialized, so is our administrative and teaching task a specialized one—it is the task of making individual programs to utilize time saved from the humdrum of the skills. An hour a day at least—perhaps more—can be utilized in developing each individual's best possibilities. That means that children are to be released from further practice in spelling or writing or grammar or arithmetic to work at whatever the child wants to do, *provided that want fits in with a definitely agreed upon program of work which the teacher and pupil have worked out.* Such valuable time should not be used, of course, for this-that-or-the-other endeavor, which is changed with the passing whims of the moment.

2. *What Shall Be the Instruction of Superior Pupils in the Informational and Thought-Provoking Activities?*

The program for the skills is simple, definite, easily designed, and relatively easily administered. What about the informational studies—the social sciences (history, geography and civics), the physical and biological sciences, household and industrial arts? In other words, what about the thought-provoking studies of the school?

Are there minimal essentials in this field, too? Are there definite sets of facts and principles which should be known by all superior people? Yes, but the problem of instruction is far more complicated than that and includes far more than the learning of merely those essentials. Even in these 'content' fields, of course, there are bodies of facts which can be agreed upon as necessary to the equipment of all educated citizens. For example, a person cannot think intelligently about America's part in world affairs unless he has at his instant command both precise imagery of the *location* of natural resources, lines of transportation, communication, and trade, and distributions of people, and also has a clear grasp of important *generalizations* about them and other matters. Similarly, there are scores of *problems* which the typical citizen faces that demand a mastery of the important generalizations and facts of industry, business, community, and national life, waste and conservation and the like. Our prospective leaders—that is,

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our superior pupils—must master these even more completely than do the rank and file. So it is also in general science, in physics, botany, zoölogy, chemistry, in industrial and household arts. There *are* minimal facts and principles that all, or relatively all, persons should be familiar with in order to take their places in an educated democracy.

But, in history and geography, for example, is the problem merely that of learning the necessary facts in a minimal list? Once these are learned, are our 'bright' pupils to be excused from the further study of the 'subject' to engage in some other more interesting activity? Probably not. The case here is not so clear as with respect to the learning of the skills, but the evidence so far accumulated is pretty convincing. No, the problem of what to do with superior pupils in the informational and thought-provoking activities is not merely that of perfecting a set of desirable habits or of 'learning' a set of established facts and principles. Our task in those activities is to be very clearly distinguished from what it is in the skills, and for two reasons.

In the first place, the learning of the skills is an individual matter. In contrast, the work of the informational and thought-provoking activities is much more largely a group matter. The most important outcomes from them are *group* outcomes, and these can be secured only by group activity. When one is learning to spell, to add, or to write, he should be left alone—others around merely get in the way. When one is discussing ways and means of accomplishing certain social ends, on the other hand, he needs the co-operation of a social group. Learning to organize, edit, and publish a newspaper, carrying on the work of a literary society, or of an orchestra, engaging in forensic debate, discussing the merits and demerits of methods of conducting governments, etc.—these are group activities. To be successful in a school, they must be carried on by groups of pupils.

A Plan for Combining Individual and Group Instruction in the Informational and Thought-Provoking Activities. Here we obtain our cue for the organization of the work of these activities for superior pupils. Some of the activities can be managed best on an individual basis; others demand group co-operation. If the group co-operation is to be efficient, however, the members of the group must have the same facts and principles at their command. Hence, the group must be kept together on the same general job. Individuals cannot be working at distinctly different tasks if the result is to be effective group co-operation. Let us study some examples.

I have recently made a study of various plans for individualizing instruction (the Burk, Washburne, and Dalton plans, for example). The study revealed certain strengths and weaknesses of individual instruction and made clear the necessity for utilizing both individual and group methods in the social sciences.[4]

It appears, then, that neither complete individualization nor the complete use of group work (of the kind followed by the conventional recitational courses) in history and geography will give us the desired results in such work as the social studies. What combination of individual and group work will effect the desired outcomes? Let us see:

We must first answer two questions: (1) What activities can be carried on best by pupils alone? (2) Which ones require that several pupils work together? Reading, map-making, graph-making, and writing individual reports are examples of the former; open-forum discussion and debates well illustrate the latter. First, let us consider the 'individual' activities.

Reading is the basis of all the work, of course, in these fields, and reading is an individual activity. From the lowest grades a large amount of motivated silent reading should be provided. The combined individual-group plan provides, therefore, that all reading shall be done in large enough units to permit each pupil to read at his natural rate. The course is divided into working units, varying from four to nine or ten class exercises in length. To illustrate: to the study of the topic, "Transportation; the Many Ways in Which People and Things Are Carried From One Place to Another," in the seventh grade, approximately twelve successive

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[4] The practical working out of the scheme is illustrated in the revised edition of the *Social Science Pamphlets* now being used in experimental trial in a number of co-operative systems.

For further illustration of provisions for superior pupils in the study of the social sciences, see the report by Hill elsewhere in this *Yearbook* and also Part II of the *Twenty-Second Yearbook*.—EDITOR.

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class exercises are assigned. The work is divided into three working units, each of three or four class exercises. Each one is based on definite reading assignments, specific map and graph exercises, and individual investigation. The basic reading on each section is from the pamphlet, *Resources, Industries and Cities*, and is about the equivalent of 30 pages of an ordinary text in elementary-school civics or history. All members of the class—bright, mediocre and dull—begin the reading of each a section at the same time. From then on, for, say, three days, the work is 'individual.' Each makes the required individual maps and graphs, answers required questions or works out set problems at his own natural rate of work. As each pupil completes these set tasks, he takes a test which appears at the end of the section in the pamphlet. He knows from the test exactly the kinds of knowledge and skill which are demanded of him. When the teacher is satisfied with his mastery of the basic work, he is permitted to do further work of his own choosing—with only one restriction: it must deal with the topic which is being studied at that time.

Why restrict the superior pupil to that particular topic? For two reasons: first, our investigations are very convincing that there are more socially important readings with which growing youth should come into contact, more generalizations of fundamental importance about social, industrial, and political life, and more problems of contemporary society with which boys and girls should become acquainted than time can possibly be found for in the school curriculum. It behooves us, therefore, to use every moment of allotted time for the careful study of problems and modes of living which investigation shows to be important in the education of our future citizens. Especially will this be true of superior pupils—America's prospective leaders.

The second reason for keeping all pupils in the class group at work at some phase of the same general topic is this: when all but the slowest and dullest (some few in each class never 'finish' a task!) are through with the work of the unit, a round-table discussion is carried on of the issues and central questions at stake. At this time superior pupils make their individual reports, and an open forum—occasionally definitely a debate—is carried on of the problems of the unit. If this is to be vital, if it is to be of interest to all and to be entered into by all, all should have been engaged in the study of it. To permit pupils to take up other activities would set up counter-interests that would tend to kill the vitality of the group discussion.

Now, nothing is more important in the activities of these subjects here under consideration than the opportunities for the interplay of mind on mind. Practice in 'thinking on one's feet' is a fundamental outcome. It is important to seek out and to set up the largest possible number of situations which are designed to create agility of thought and of oral expression. One great danger lies in the important tendency to individualize our instruction: that it will result in the minimizing of the importance of team work.

At this point let us recall that our instruction is responsible for developing the all-round boy and girl. Specifically, it is responsible for developing those gifted in *social intelligence* as well as those who are verbally superior. Hence our discussion of group activity is directly pertinent to this important problem. Social leadership, ability to organize people and their affairs, skill in managing group debate, and the like—all these abilities can be developed only through definite and systematically planned activity. To have skill in the art of planning group activities, one must have practiced the art. To preside effectively over a town meeting, a lodge meeting, a debate, a hearing—what not, one must have faced many times the spontaneous situations of which these are made up. The school is responsible for providing years of training in meeting just such situations.

For such reasons as these, we believe that the social sciences especially must provide constant practice in social co-operation. For such reasons it seems clear that pupils must be organized into groups and that curriculum materials must be designed definitely on the basis of group activity. At the same time shall we individualize all the processes that can be handled most economically and effectively at the natural paces and by the natural methods of each individual pupil working alone? By all means. But never should we lose sight of the need for utilizing these processes in social interplay.

A Suggested Make-Shift for Conventional 'Recitational' Courses. A practical emergency faces administrators and teachers who have sectioned their pupils into ability groups. I have in mind such subjects as mathematics and science. Junior-high-school pupils have been divided into X-Y-Z sections—that is, into superior, average, and inferior groups. The teacher faces a difficult question: what material shall be given these three differing groups? He has no time—oftentimes has not the ability—to design three different courses. He must depend upon the textbook and the teacher's manual. He looks over the available texts, hoping that there are differences between the books sufficiently marked to justify using one text in the superior class, another in the normal group, and still a third in the inferior class.

In this practice of many teachers and in the fortunate difference between textbooks rests a tentative solution to tide over the immediate emergency. Ideally, we should have at least three types of course in each of the great fields of school work, so graduated as to fit varying abilities of pupils. Such planned differentiations in textbook writing have never been carried out. If they had, it is very doubtful whether textbook publishers would finance their printing and sale.

We do have, on the other hand, books and materials published by different companies which are different enough in graduation, style, and difficulty so that tentative approximations can be made of fitting textbooks to groups of varying ability. An excellent example of this practice is reported by Mr. Arthur Brogue from the J. Sterling Morton High School, Cicero, Illinois. In that instance, mathematics pupils are organized in three ability groups, with each group using a text adapted fairly well to their rate of learning.[5]

I have discussed the matter with specialists on textbooks in the mathematics and science fields. It is their judgment that there are now available textbooks and other organized materials that are different enough so that schools might well use particular ones in classes for superior pupils and others with young people of less brilliant ability. This would be, of course, only a make-shift. It is a practical make-shift, however, and one that would assure some slight degree of adaptation of material to young people of fairly distinct mental abilities.

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[5] See the reports by Brogue and by Breslich in Section II.—EDITOR.

3. *What Shall Be the Instruction of Gifted Pupils in the Appreciational Activities? Our Limited Equipment*

What, finally, shall be the program for gifted pupils in the appreciational activities of the school? What are we doing for those who are unusually endowed in music, for those who have conspicuous capacity for writing, for those who might be our leaders in art?

It is very doubtful if the inquiries of your Committee have discovered the best provisions that are now being made for these gifted ones in public schools. In a few instances examples (like that from Appleton, Wisconsin) have been turned up of very definite provision for them. There must be—I know personally of two or three—a goodly number of public school systems in which curriculum opportunities are given for special training for individuals in music and in art.

Are not schools obligated to make just as definite provisions for this division of our gifted children as they are for those who excel in mathematics, reading, physics, or the social sciences? They are, indeed—all the more so because the startling development of mechanical civilization in America has not been accompanied by a corresponding spiritual and esthetic advance. America can well afford to take lessons from the history of more established industrial countries and systematically assay the esthetic ability of the pupil body of her schools. Once discovered, talent should be developed by definite curriculum modification.

The development of the abilities in question is an individual matter. Skilled and artistic musicians, writers, painters—what not, are sought in the education of the conspicuously gifted. Is training then a matter of 'minimal essentials?' No, it appears not to be that. It is a matter of developing each individual to the point at which he can make his greatest contribution to society and at which he can secure the greatest possible enjoyment. Our administrative responsibility, therefore, lies in the direction of providing individual programs for the conspicuously gifted in the esthetic or appreciational activities. Let the school set up machinery by which those who are conspicuously gifted in music can be discovered. Let us use the Seashore tests and invent others to supplement them. Let us devise tests to discover the artistically talented.

Let us, for example, organize a program of constructive writing through our English courses that will reveal pupils of rare literary ability. The task of discovering young writers of talent is probably not so difficult as that of picking out those who are gifted in art and music. There is a very good reason for that; the correlation between ability in writing and verbal intelligence is high.[6] On the other hand, from preliminary studies which we have at hand it appears that the relation between verbal intelligence and esthetic and appreciational abilities must be distinctly low. At the present time, therefore, conspicuous success on a verbal intelligence test would give considerable promise of capacity for learning to do constructive writing. Such success would throw little light on probable future attainments in the esthetic field.

Nevertheless, is not the obligation clear that we must find ways and means of discovering these unusual people? Once they are found, let us adapt school programs to their rare abilities. Let us, for example, use the time saved from the skills for such purposes.

Should we not bring into the school specialists in music, art, and literary instruction who have the ability to develop these gifted young people?

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[6] Illustrative data on this question will be reported in the February 1924 issue of the *Jour. of Educ. Psych.*

CHAPTER VII

PERSONAL AND SOCIAL CHARACTERISTICS OF GIFTED CHILDREN

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Whenever special provision is proposed for gifted children, particularly provision that tends to accelerate them beyond children of their own chronological age, there is certain to be some opposition raised by those who would have us believe that gifted children as a group are physically and socially immature, inclined toward 'bookishness,' and prone to show neurotic and psychopathic tendencies. Since the advent of wide-spread interest in children of superior endowment, no small amount of research has been devoted to ascertaining the nature of their non-intellectual traits. There are numerous studies in which teachers and investigators have rated superior children in various character traits; Baldwin, Terman, and others have made extensive investigations of the physical development of gifted children; Root and others have centered their attention upon the psychological traits of these children aside from the strictly intellectual.

Contrary to the popular belief current some ten years ago, all these studies indicate that as a rule, the unusually capable child, instead of being a one-side product, over-developed in one or two respects at the expense of all others, is really an all-round individual, not only highly endowed intellectually, but superior in moral, social, and personality traits as well. Cases in which these conclusions are not borne out are conspicuously few.

I. HEREDITY AND HOME ENVIRONMENT

In practically every intensive study that has been made of gifted children some consideration has been given to their nationality, heredity, and home environment. The results of these studies agree closely with each other, and with the natural expectation that children of superior mental endowment as a group come from sound stock and from homes above the average.

Nationality. It appears to be generally true, regardless of the section of the country in which the study has been made, that gifted children are, in a large majority of cases, native-born and of American parents. Most investigators report a marked excess of English, Scotch, Jewish, and German parentage, and the case studies of many children with exceptionally high I.Q.'s show a predominance of these racial strains in the ancestry.

Heredity. There seems to be a marked tendency for gifted children to come of superior mental stock. Of the group of 643 superior children studied by Terman, a large number have relatives who are listed in ***Who's Who*** and in other biographical dictionaries. Twenty-two percent of the members of the Hall of Fame are known to be related to this group of children[1] Whipple in a study of 125 grade skippers found that 81 percent were of "gifted" ancestry. Dr. Yates estimates that nearly three-fourths of her group were of superior mental heredity.[2] Other studies of a similar nature tend to substantiate the results of these investigations.

Occupation of fathers and education of parents. The occupational level of the fathers, and the education of both mothers and fathers further indicate that the intellectual heredity of these children is of a superior type. Several studies in which the occupations of the fathers were classified according to Taussig, show that 70 percent or more fall in the two upper levels of that scale, *i.e.*, either in the professional class or in the business and clerical groups. Since only about 7 percent of the general population belong to these upper levels, we are justified in the statement that the superior homes of the community are those in which gifted children are largely to be found. We do find, however, instances in which a small percentage of the pupils in gifted classes come from the semi-skilled and even the unskilled labor groups. The

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[1] See Chapter IX of this *Yearbook*.

[2] Yates, Dorothy Hazeltine. *A Study of Some High-School Seniors of Superior Intelligence.* Public School Publishing Co., Bloomington, Illinois. 1922.

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distribution of the occupational levels of parents of gifted children in the public schools is likely to vary, however, according to the section of the city in which the class is found, and according to the number and standing of the private and parochial schools in the district.

Both mothers and fathers of gifted children are, as a rule, better educated than the parents of average children in the community. Most studies show that in the case of gifted children, 50 percent or more of the parents attended the high school, and that 20 percent or more attended college.

Home conditions. A favorable cultural atmosphere and the helpful co-operation of parents, as well as definite educational training, are found in the majority of the homes. Indeed, Root[3] found the cultural tone of the homes in the 53 cases of supernormal children which he studied so superior that he was led to state: ''There is often a definite loss as regards elegant usage when a child from a cultured home comes in contact with teachers and pupils of a distinctly lower cultural level.'' Root also feels that the cultured home surpasses the school in incidental teaching of reading, literature, appreciation of flowers, love of animals, together with certain other subjects, and in frank individual development and the avoidance of all sorts of social fears and superstitions. Family success, tradition, and ambition have often been an immediate as well as a remote motive for the earnest attitude and high level of academic accomplishment of the children.

The home environment of those gifted children who come from the less cultured homes is usually rated superior to the general surroundings of the neighborhood.

It is interesting to note that in many case studies of superior children who have not lived up to the expectation warranted by their superior capacity, discordant home relations, lack of parental supervision, or objectionable home training are frequently mentioned as contributing causes.

In a study made of over 175 superior children of Detroit, Miss Anna Engel found that gifted children are not largely 'only' children. In her group she found 15 percent were the only children in the family; 54 percent were the first child in the family; 30 percent were the second child; 10 percent were the third child; and 6 percent were the fourth, fifth, or sixth child in the family. The greater number of these children came from families of one, two, or three children. Only 27 percent of the children came from homes where there were more than three children, and 73 percent came from homes where there were fewer than four children. The results of Terman and a few other investigators who have collected information on these points seem to corroborate these data.

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[3] Root, William T., ''A socio-psychological study of fifty-three supernormal children.'' *Psych. Monographs,* Vol. 29, No. 4: 1921.

The replies to a questionnaire on the personal and social aspects in the education of gifted children recently distributed by the writer agree very closely with the results of the more carefully conducted studies mentioned above.[4]

II. Physical Traits

Another important outcome of the scientific study of gifted children has been to disprove the once commonly accepted belief that mentally superior children are physically inferior. Yates, Terman, Root, Woodrow, and others have shown that mentally superior children as a class tend to show earlier physical development than normal children. Baldwin, whose chapter in this volume should be consulted for a full discussion of the physical traits of gifted children, has figures to show that there is a tendency for physical and mental precocity to accompany one another. Teachers of gifted classes in reporting upon the features that distinguish their groups from a normal group, frequently mention high average attendance as an outstanding characteristic of gifted children, a condition which must be due in part, in these days of increased efficiency of attendance departments in the schools, to superior general physical condition and fitness.

The tendency to under-rate the physical development of superior children has doubtless arisen from the administrative policy in our schools of promoting children beyond classmates of their own chronological age, so that teachers have been judging these children outside their own age groups, and pronouncing them 'weaker' when as a matter of fact they are merely 'smaller.' In this connection the writer was interested some time ago in discovering that of the twelve or thirteen most accelerated children in the elementary grades of a certain city school system, only one pupil was found to be the smallest child of the group in which his mental ability had placed him! Reports from teachers the country over reflect what seems to be a general tendency for children of superior mental endowment to be of superior physical endowment as well. There is, of course, some mention made of the high-strung, under-developed child, but his case is so rare as to lead us to believe that he is found no more frequently in a gifted group than in a normal group.

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[4] The results of this questionnaire, referred to frequently in this chapter, represent the opinions of 62 teachers and supervisors in 18 states rather evenly distributed throughout the country. The writer wishes at this time to acknowledge the generous and helpful response of those who contributed.

III. SOCIAL TRAITS

The opinion is frequently expressed that gifted children, when placed, as in a school system, among those who are two or more years their senior, show evidences of social immaturity. However, teachers' observations, and in the case of several studies, the answers of the children themselves to questionnaires, show that there is a strong tendency for gifted children to prefer older companions, or those equal to them in mental age. In an interesting experiment conducted by Miss Ruby Hempleman of Detroit, who for two years has had an experimental group composed of both 'X' and 'Z' pupils, it was demonstrated that on every occasion and for every undertaking, when the pupils were left to choose their own partners, the group separated itself most strikingly into pairs of similar mental age and I.Q. Numerous instances of this sort may lead us to wonder if, where administrative obstacles make it impossible to group gifted children together, accelerating those who are physically sound would not, contrary to popular opinion, result in increasing their happiness and improving their general attitude toward school instead of mitigating against it.

There is at hand sufficient experimental evidence to show that superior children mingle easily with other children, and as a rule show little difficulty in adjusting themselves either to an older or to a younger group. There are, no doubt, gifted children who are egotistical, or absorbed in books to the exclusion of all other interests, or unsympathetic with associates of lesser abilities, but any sweeping statements to the effect that gifted children as a class possess undesirable social traits are unwarranted, because based upon conspicuous individual exceptions.

As further evidence of the ability of the gifted to adjust themselves to their associates, the teachers who answered our questionnaire almost universally reported that these pupils are popular on the school grounds, and that as a group they are more frequently chosen by their fellows for positions of responsibility than are normal children. Several studies by Coy, Terman, and others have shown that pupils who have been accelerated a year or more beyond their chronological age, display a healthy interest in the same games, in the same type of out-of-door activities, extra-school occupations, and in things generally, that their older classmates do.

It is a very common thing for teachers who are enumerating outstanding characteristics of a gifted group, to put high on the list "an interest in people" or "skill in managing people," or "a high degree of leadership." Mention is frequently made of their success as 'traffic' and 'police' officers, as class leaders, baseball captains, scout leaders, and the like.

Teachers should be warned, however, against the false assumption that the only indications of leadership are those evidenced by social adaptability. Leadership may take many forms other than the ability to attract and influence people. It may eventually be revealed in the development of new formulae in the laboratory, the invention of apparatus, the discovery of scientific laws, or unusual attainment in literary fields. The sooner our schools come to realize their responsibility in fostering and developing leadership in all its various aspects, the sooner will society reap the fullest benefit from the potential genius that is ours.

Dr. Yates[5] describes an interesting case in point: "Two high-

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[5] From an address "Impressions from two years spent in testing gifted children," by Dr. Dorothy Yates, published in the San Jose State Teachers College Bulletin, May 1922.

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school boys that I came across deliberately avoided positions of leadership, though they were much criticized by their teachers for so doing. They are both remarkable boys and it is not improbable that one of them at least will one day make some real contribution to science, which is the field that interests him most deeply. 'It would waste my time to go on with debating,' he said, 'for there are many things I must find out.' Is not such a pupil best left in peace to develop his abilities without undue distraction?"

Closely related to a pupil's qualities of social leadership is his attitude toward his classmates and others in the school. It seems hardly necessary any longer to speak of the salutary effects of segregation upon the attitude of gifted pupils toward their own competence and attainments. Our respondents almost universally report that the attitude of pupils who have shown tendencies toward egotism, snobbishness, and an over-bearing sense of importance changes when they are placed in competition with those whose capacity is equal or superior to their own. Miss Genevieve Coy, who has made careful study of a class of gifted children, states that in her experience she has never known a gifted child to become egotistical as a result of segregation unless his teacher or his parents encouraged him in it! On the other hand, it seems generally to be the observation of teachers that the less gifted the child is, the more prone he is to develop egotism and an objectionable attitude toward others. Not infrequently it is the average child of average parents, improperly placed in the gifted group, who displays a tendency toward conceit. Whenever these undesirable traits are displayed, the teacher and the parents can skillfully bring social pressure to bear in stamping out the objectionable characteristics.

IV. MENTAL TRAITS

To speak of the mental superiority of a group of gifted children is perhaps sufficient to distinguish them for purposes of classification from their less fortunate fellows, but there are certain ways in which their superiority manifests itself that should be of special interest and importance to teachers. These characteristics may readily be grouped under a few main headings.

Most frequently mentioned, and most easily observed, is what may be termed their brilliance, or *ease of assimilation* and, as a rule, their quick reaction time—their ability to absorb the same amount of material in a fraction of the time required by a normal group.

They are further distinguished for their *power of sustained attention*, their mental endurance, and their tenacity of purpose. Root, in a series of tests of various types of mental attributes, found a group of superior children to be decidedly above the normal in 'stick-to-it-iveness'' and ability to persist in the task at hand.

Another mental characteristic which distinguishes them is their *intellectual curiosity and initiative.* They seem almost without exception to be of an investigatory turn of mind, to take the initiative in any intellectual undertaking, and to be possessed of an omnivorous appetite for learning. Another observation by Miss Hempleman seems to bring out this characteristic very strikingly. On the occasion of a field trip when she had taken her pupils into the country to observe various phenomena in connection with their nature study, when the children were called together in a group to observe some object or to listen to the teacher's explanation, the pupils on their own initiative grouped themselves about her in three more or less distinct rings. The inside ring, or the one closest to her was composed of the X, or bright, children; beyond them were the Y, or average, children; on the outskirts of the group were those of the Z, or dull, pupils who had not wandered off in some other direction!

The ability to generalize is another common trait of the group. They are logical, quick to grasp underlying principles, to observe and associate similarities, and to foresee results.

A gifted group is further characterized by *broad-mindedness*, tolerance, and a detached, impersonal attitude toward problems.

The gifted seem particularly competent in *self-criticism.* The ability "to know when they do not know" is often well-developed. Root found this trait very pronounced among conspicuously superior children. He states that in many cases there is an adult attitude of self-criticism and criticism of others.

As a group, the gifted are also more *imaginative*, they possess a keener *sense of humor*, and are especially gifted in *linguistic attainments*.

Contrary to the once prevalent idea that mental superiority manifests itself almost exclusively in an inordinate interest in reading, investigations are strikingly in agreement on the *versatility and vitality of interests* found among gifted children. A gifted child is not interested in one, but many things. His range of interests includes science, manual arts, nature study, sports, music, drawing, mechanical devices, politics,—in short, it runs the whole gamut of human endeavors and activities.

Closely allied to their wide range of interests is the degree of *special talent* found among gifted children. As yet, there has been no extensive investigation by means of objective measurements to determine the relation of special talent to superior intelligence, but the teachers replying to us are in striking agreement with respect to a few types of special abilities.

In *music*, mentally superior children seem as a group to be more competent in the theory and technical aspects of the subject, though not necessarily in the matter of performance. Some teachers and music supervisors report, however, that there are fewer monotones among the gifted children than among normal and dull children, and that their sense of musical appreciation is greater. It does not follow, however, that we should look to the gifted children exclusively for our future musical prodigies.

In *drawing*, there seems to be a slight tendency to rate gifted pupils higher than normal children, but this again may be based largely upon their intellectual appreciation of the art—their ability to grasp the laws underlying perspective, proportion, and other theoretical aspects of the art, and their ability to make and adapt materials more cleverly to their own ends—rather than upon any superior innate ability of graphic representation.

Teachers are almost unanimous in reporting that gifted children are decidedly superior in their power *to write and dramatize stories*. This skill is, of course, closely related to what appears to be an almost universal characteristic of gifted children—their desire to talk, or express themselves, and their ready grasp of the more complex forms of verbal expression.

Teachers seem about equally divided in their ratings of the *mechanical ability* of gifted children, altho a few report that their children are more interested than normal children in experimenting and investigating. Miss Engel, of Detroit, reports that of 105 boys in classes for superior children who were given the Stenquist Test of Mechanical Aptitude, only four were below the average for their age. Of the three classes tested, the average for each was above the 80th percentile. This outcome is of peculiar significance in connection with the common notion that intellectually gifted children show a conspicuous lack of mechanical aptitude.

V. Moral Traits

Those who have been in close contact with gifted children frequently refer to their superior moral traits. Scientific measurements are, perhaps, not yet developed to the point where we can judge character surely and objectively,[6] but there is doubtless some real foundation for the assertion that gifted children usually conform more readily to the moral and ethical standards of society, since the trait is so frequently mentioned as being characteristic of them. Root, for instance, says that as a group they are "traditional and orthodox," that they are "good conformists." Teachers frequently refer to their "higher standards," their "truthfulness," their "ability to govern themselves," to "assume responsibility," to "respect the rights of others." They speak of less cheating and copying, less tale bearing.

One teacher cites an illustrative case which arose when both a dull and a gifted child were found with pencils that did not belong to them. She handled the situation in an identical manner with the two children, explaining that they had no right to the property of others without the owner's consent. In the case of the gifted child, this single correction was enough. The offense was never repeated and the child took the trouble later to call attention to the fact that he was thereafter using his own pencil. In the case of the dull child, the offense was repeated on the afternoon of the same day. He was spoken to again, more forcibly. The following day, the same action was repeated for the third time. It was only after a severe session that the dull child was brought to the point where he no longer took the pencils that belonged to other children. This difference between the two children in responding to moral training may, or course, be attributed directly to the difference in their levels of intelligence and not to an innate superior sense of right and wrong as such. The dull child forgot from one time to the next what he had been told not to do. The gifted child probably had reasoned, on other occasions in his experience, if not in this particular one, that "honesty is the best policy," that it pays to listen to those who are in authority. In short, he was profiting in the light of his past experience—one criterion of intelligence frequently set up

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[6] Several plans for measuring moral traits by objective methods are described by Terman elsewhere in this volume.

In several of our reports from classes for gifted children the teachers mention the absence of boy and girl 'crushes.' Mudge,[7] in a study of the adolescence of superior girls, says: "The premature love affairs of early adolescence appear to be more common among girls of average mentality or below than among the girls who later go to college. . . . They like boys and enjoy playing their games with them, but do not share in the sentimentalizing of many of their girl friends." Miss Ruby Johnson, of Omaha, in commenting upon boy and girl crushes in her classes, makes the following statements which seem significant in explaining their absence: "The following reasons seem to help in accounting for this desirable lack: (1) the children came from many different schools and met here, in most cases, strangers; (2) the spirit of the room was so entirely free, open, and above-board, that there was no incentive to establish any secret understandings, bred by note-writing and the like; (3) the children's minds were so fully occupied with things they enjoyed, that they were not driven by boredom to fill their minds with trash or nonsense."

VI. PEDAGOGICAL IMPLICATIONS

A combination of intellectual, moral, and social traits such as those just reviewed must have some very significant pedagogical implications.

An interested, alert group of pupils, if they are kept occupied with material suited to their capacities, is likely to show a very commendable attitude toward schoolwork and to afford little or no difficulty in disciplining. This seems generally to be the case. Teachers testify that gifted children obey rules with less urging, that very little 'police duty' is necessary, that *the problem of discipline disappears* with the segregation of gifted pupils, that in comparison with normal children, they are more sensitive to criticism and more susceptible to correction. By way of example, a Detroit teacher states that the remark, "Refined people do not chew gum in public," made once to a group of gifted pupils was sufficient, while in a class composed of normal children, exposed to the same suggestion, no fewer than fifteen pupils in the period of one week were asked to remove gum from their mouths! One not familiar with classroom procedure in a gifted room, however, should not be mislead by these statements into believing that the order in a class of gifted children is of that old-fashioned variety where the dropping of a pin can be heard at any time. A gifted class, properly conducted, will be characterized by much purposeful activity and freedom of action.

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[7] Mudge, E. L. "The superior girl in early adolescence." *Ped. Sem.*, 30: March, 1923, 45-7.

The attitude of gifted pupils toward their work and their *habits of study* are in the main conspicuously excellent. Typical responses of teachers relating to this phase of their work are: "Gifted children never ask, 'What shall we do now?;' " "If one says to a class of gifted children, 'In the Survey you will find an article on coal,' they immediately want to read it, and are soon planning who shall be next in turn to read it;" "The particular delight of a gifted child is to surprise the teacher with some unexpected bit of skill;" "Pupils show self-confidence and pure delight in work;" "Gifted children desire difficult work and usually exceed the requirements laid down for them."

Notwithstanding the favorable reports from teachers concerning the habits of study of gifted children, they not infrequently mention *habits of indolence and inaccuracy*, especially in children who are new to the group. While the lazy gifted child is the exception, it would scarcely be an exaggeration to say that there is one in almost every room. Reasons for this are easily found. As a rule, gifted children who have not been segregated are not required, or even expected, to do work commensurate with their capacities. To 'get by' with as little exertion as possible is after all human nature, and since these pupils have never felt the need for application of real effort, it is only natural that they should slip into habits of carelessness and indifference.

A very striking case of this type is described by Arthur W. Kallom in the September issue of *School and Society*. A twelve-year-old boy in the lowest of seven seventh-grade groups made a noticeably high score on a group intelligence test. Although his teacher maintained that the boy was very dull in his work, a Binet examination showed an I.Q. of 123. An interview with the boy revealed the fact that he had been 'putting it over' on his teachers since he had entered the fourth grade, and for the past three years had studiously been posing as a dull boy! This is no doubt an extreme case, and yet similar instances have been reported elsewhere.

A large percentage of those gifted children who have been the occasion of articles on the psychopathic child are children who display laziness and an indifference toward reaching a level of attainment commensurate with their capacity. It is significant to note that cases of indolent gifted children appear to become more numerous as one follows them into the upper grades. This fact, coupled with the almost universal opinion of teachers that, as a group, pupils' habits of industry and methods of study show a distinct improvement as a result of segregation, should have a significant bearing upon the organization of classes in the very early elementary grades. It would seem, we mean, that *the earlier in his school-career we provide for the gifted child in the light of his superior capacities, the more successful will his career be, and the less time will he waste in developing undesirable habits which must later be unlearned.*

This importance of early training in habits of study for the gifted is further brought out by Miss Hempleman when she states, in speaking of a group of superior primary grade pupils: "From the data obtained it was concluded that much that is inhibitive to the fullest development of children results from restricting them to a pace and scope of activity identical with those of their ordinary classmates, and from teaching them by methods obviously adapted to a child of average ability. . . . When new material was provided them, the children followed the old teacher-directed path and wrote the word five times or mumbled the arithmetic formula to themselves, merely because they felt it to be the thing to do. There was no outward manifestation of use being made of any of the valuable mental characteristics warranted

> by their intelligence quotients. Only here and there, on informal occasions were remarks dropped which led us to believe that the children were really able to apply their superior powers of observation, association, judgment and reasoning in order to make more adequate response to some new situation."

Their educational ambition and their wealth of incidentally acquired knowledge contribute to the pleasure of teaching a class of gifted children. All investigators and all our respondents agree that *the gifted are well-informed and well-read beyond their years,* that a high percentage of them are planning to go to college, many of them to enter some profession, and that, as a result of their superior intellectual curiosity, they are well-versed in many subjects. As one teacher expresses it, "try as one may, it is well-nigh impossible to put a superior child in a situation with which he does not have some unexpected degree of familiarity."

Because of their superior background as well as their superior mental endowment, *it is extremely important that we guard against the danger of carrying over into a class for gifted children the old methodology and curriculum-content of the regular course of study,* at best ill-suited to the needs of superior children and increasingly more so, once segregation has been effected. A teacher of a gifted group must bear in mind the differences in mental make-up between superior and normal children. In the first place, the tendency of gifted children is to grasp the central thought or principle and to determine the lesser details involved according to this general idea. It is also of importance that the teacher remember that gifted pupils can acquire the same amount of material in a much shorter time than normal children, that they seldom have to be told a thing twice —indeed, that they more often anticipate an explanation before it is completed. For these reasons, a skillful teacher will reduce the amount of detailed explanation, thereby sparing her pupils the boredom and distaste for the work that is likely to result if she is not keen enough to sense when she has said enough.

It follows from this that *the amount of drill that is given should be drastically reduced;* fifty percent of that given in the regular grades is an average estimate. That it should be necessary to mention this important modification in procedure to intelligent teachers seems almost preposterous; yet it gives us pause when we encounter a teacher who, in response to the query: "How do your classroom methods differ from those of the average room?" replies confidently: "We give them *more drill* (*which they hate!*") (italics ours). It is apparently necessary to point out to some that there is an important distinction between securing accuracy in fundamental principles, and in harassing a child into learning all the multitude of details that a gifted child is likely to discover in his study of a given subject. We should perhaps warn some teachers of gifted children that in their zeal to impress accuracy and attention to detail upon their pupils, they should not neglect the development of that more fundamental skill, the ability to separate the essential from the non-essential, and to weigh and retain facts in proportion to their importance. In this connection it is pertinent to quote certain statements of Dr. Yates in speaking of the over-conscientious bright child. This type of child (usually a girl) is one "whose marked ability is often concealed and hampered by excessive industry and over-scrupulousness. Petty requirements and the drudgery of routine are allowed to obscure the larger aims of study. Such misplaced emphasis may form bad mental habits that persist through life." Does it not behoove us to watch more carefully lest our gifted children suffer from the inadequate understanding of incompetent teachers?

A further departure from regular classroom procedure which is called for by the mental traits of gifted children is a *change in the amount of responsibility shared by the pupils and the teacher.* It is not an uncommon thing for a class of gifted children to conduct an occasional period successfully with almost no guidance by the teacher. Indeed, *pupil-teaching* is one of the devices most frequently mentioned as a means of developing initiative and a sense of responsibility in gifted children, and this device has been used with a marked success even in the first grade. Their superior mentality, their powers of self-criticism, their ability to pick out the essential points in a discussion, and their enthusiasm enable gifted children to conduct a recitation almost independently of a teacher.

Another way in which the teacher will find a gifted group very different from a normal group is in the versatility of their interests and the *greater number of self-initiated projects and activities.* Another phase of the experiment conducted by Miss Hempleman, which has been referred to earlier in this chapter, was to keep careful check on the various types of pupil response in the room. There were six types of response noted: (1) Initiating, (2) Self-judgment, (3) Self-direction, (4) Co-operation, (5) Purposing, (6) General class contribution. A comparison of the results of the dull and the gifted children showed that "the gifted group was responsible for 96 percent of the initiating, 80 percent of the evidences of self-judgment, 82 percent of all the self-direction, 61 percent of the instances when co-operation was manifested, 96 percent of the 'purposing,' and 84 percent of all the general class contribution, or what might be termed 'recitation.'" If this may be taken as a fair estimate of the amount of class activity that a group of gifted children will display, it serves well to indicate what should be the alertness of their teacher and the range of her adaptability.

VII. SUGGESTIONS FOR DEVELOPING DESIRABLE TRAITS

Replies to the questionnaire sent out by the writer and referred to earlier in this chapter, included numerous practical and helpful suggestions for developing certain types of desirable traits in children of mental superiority. These suggestions may be arranged in five general groups.

1. *Added social responsibilities.* The first group is composed of types of activities that are in the nature of added social responsibilities.

Many classes for gifted children have organized, under various names, civic leagues, or clubs, which are conducted by the children themselves—in many instances, according to parliamentary procedure. The purpose common to all these clubs is to give the children an opportunity to develop the kind of leadership that this type of activity demands, and to furnish social contacts of a sort that more nearly approximate community life than do the more common types of classroom activities. In many instances, particularly in the upper grades, these organizations are virtually a self-governing body for the class or school as a whole. In other instances, their functions are restricted to those of an 'interest club' in which the children assemble for programs or instructional gatherings devoted to topics of special interest to them.

Another type of activity frequently mentioned is 'police patrol.' The pupils are in charge of assemblies, they escort younger children across dangerous street crossings, they keep order in the halls during recess and noon periods, they supervise the play grounds, they act as leaders and 'safety officers' on class excursions, and in general look after the welfare of themselves and their classmates.

Athletic leadership is, of course, another type of activity belonging to this group. Pupils serve as captains of teams (although when serving in this capacity they have usually been elected to office); they act as game leaders, managers of teams, custodians, and the like.

Often reported is the organization of committees whose functions are various. There are committees for keeping order, for looking after the library books, for maintaining order and neatness in the classroom, for inspecting the health habits of the class, for providing flowers and suitable decorations for the room, for handling various funds (as, for example, milk money and thrift contributions) and numerous similar activities.

One teacher reports that the gifted class has written a School Creed embodying the rules of the school.

In all the activities mentioned above an outlet is provided for those pupils whose bent is in the direction of mingling with, and managing others. Teachers' judgments would indicate that most mentally superior children are greatly interested and very proficient in social activities of this sort. Nearly all these suggestions may be practiced, at least in part, from the first grade up.

2. *Added academic responsibilities and academic freedom.* Most frequently mentioned in this group is the practice of *pupil-teaching.* This type of activity may range from pupil reports and 'lectures' given before the class to the actual conducting of recitations by the pupils with little or no assistance from the teacher.

The organization of *research committees* to develop more fully certain problems bearing upon the topics of class discussion is another form of responsibility frequently practiced. The duties of these committees are to review additional supplementary material and present it to the class in the form of special reports.

A number of gifted classes also formulate their own *standards of class achievement*. Miss Diamond, in charge of a gifted class of 6th- and 8th-grade pupils in St. Paul, reports that in her room different groups of children have been asked to plan the work to be accomplished in a subject during a given period of time, to suggest the best methods of accomplishing the task, to work out interesting features, and to test results. One or two teachers report that their pupils mark each other's papers and offer criticisms of the work of individual pupils and of the class as a whole.

Most teachers state that they allow a wider range of *freedom in the choice of topics* for classroom discussion than is permitted children in the regular grade rooms.

The *school paper* is a common device for developing intellectual leadership in a class. Nearly all classes of gifted children above the third or fourth grade issue some sort of periodical or annual publication which affords an incentive for the development of ability in original stories, verses, and the like, and in elementary business management.

Other devices for fostering histrionic ability are the more common debating societies, dramatic clubs, and class programs.

3. *Systems of honors and rewards.* A few schools report that they offer medals for superior achievement, and about an equal number report that they have organized study clubs and honor societies whose membership is restricted to those pupils who reach a certain standard of achievement.

4. *Lessons from biography.* A number of teachers report that they have found lessons from biography useful in helping to modify character traits. Particularly in those grades where the children are still in the stages of hero worship is it possible to bring to notice great and admirable characters in history whom the children may emulate.

5. *Hobbies and special interests.* Opportunities, both inside and outside of the classroom to exploit special interests, furnish an incentive for the development of certain aspects of leadership. Singing in a glee club, playing in an orchestra, or making col-

lections of specimens (insects, soils, rocks, etc.) are examples of this type of activity.

A suggestive, and in some respects, novel plan for capitalizing the special interests of gifted children has been developed in the schools of Appleton, Wisconsin, under the direction of the principal, Mr. E. J. Rohan. In this school system the children have organized a number of 'Interest Clubs' whose purpose is to provide opportunity for further development of some subject of interest to the members. There are, for example, the Forestry Club, the Nursing Club, the Radio Club, the Teachers' Club, and several others. Membership is limited to those who are interested in the particular subject which the name of the club implies. All meetings are held after school hours, and only those who are interested participate. That the clubs are a vital factor in the lives of these children is evidenced by some of the undertakings they have completed successfully. The Forestry Club, for example, was organized shortly after a very severe ice storm had demolished the trees on the school grounds. Those boys who were interested in restoring the trees formed a club, studied tree surgery, repaired the trees on the school grounds, delved deeper into the subject, took up the study of forest conservation finally making a trip to a nearby state reserve. The Teachers' Club was composed of girls who thought they might later be engaged in teaching. The club studied several elementary books in pedagogy, visited various elementary grades in session, did some practice teaching, and held regular discussions of the methods and practices used in their own classes. In a few instances the instructors for these clubs were not from the regular teaching staff of the school. For example, the instructors for the Salesmanship Club, the Radio Club, and the Auto Mechanics Club were men of the town who were regularly engaged in those occupations and sufficiently interested in the welfare of the boys and girls of their city to devote some of their time to the clubs.

How to Combat Undesirable Character Traits

The undesirable character traits most frequently displayed by gifted children seem to be egotism and indolence. The writer was interested in knowing how frequently the classroom teacher was confronted with either of these characteristics, what were their methods of dealing with them, and how successful they were in eradicating them.

Of the sixty or more teachers who replied to the questionnaire mentioned earlier in this chapter, over half reported that they had never been troubled with *egotism* or boasting among their pupils. Many of the remainder said that when a case of that sort did arise, the children automatically took care of it themselves, *i. e.*, the attitude could not exist long before social pressure had stamped it out. Some of the methods reported to be successful in modifying a tendency toward egotism are: (1) individual talks with the offenders, lessons from biography showing the fate of characters who had similar traits, stories from Aesop, and reference to the fault as a primitive trait which we *must* have outgrown; (2) ignoring the offender, paying no attention to his fault whatever, giving him fewer opportunities to recite, limiting his participation in class activities, giving him no commendation or praise; (3) making unfavorable comparisons of his work with others, praising others in the group for the very thing of which he boasts, showing up the offender's lines of least brilliance, comparing his work with that of others who are superior to him, and giving him an increased amount of difficult work; (4) stressing the value of mechanical and manual achievements, providing more social contacts with other children in the school, having pupils from lower grade rooms exhibit their skill to the class, particularly in the fields of music, and manual arts. A few teachers stress the necessity of avoiding any mention of superior mental rating, while one or two advise giving the mental rating and explaining to the pupil what is expected of him. Obviously, not every one of these methods can be used indiscriminately in dealing with every pupil who exhibits a tendency toward boastfulness. The cure must be suited to the personality of the individual. However, almost without exception, our teachers report that they have been successful in coping with egotism by one, or a combination of several, of the methods suggested here.

The *problem of the indolent gifted child* appears to be more difficult and gives less promise of successful solution. Almost every teacher had been confronted with the problem in one or more instances, and over half of them state that they have not always met the situation successfully. Suggestions for dealing with the problem include the following: appeals to the pupil's pride, personal talks with him, exertion of social pressure, comparison of his achievement with that of the class as a whole, individual graphs of achievement, additional work, special reports to the teacher after school hours, especial appeals to his particular interests, training in how to study, surrounding him with his more active classmates, giving small rewards and praising him highly for evidences of improvement, showing him the responsibility that is attendant upon his superior ability, refusing to accept unsatisfactory work, enlisting the co-operation of the parents, and threatening demoti[illegible]

The most significant fact brought out by the replies to this [illegible] of our questionnaire is that, with the exception of two cases, all reports of failure to bring about a change of attitude occur above the fifth grade, most of them in the intermediate grades. This may arise from some emotional disturbance associated with adolescence, or again, it may arise from the mistake of permitting gifted children to dally through the lower grades until their bad habits of study have become difficult to eradicate in the upper grades.

VIII. The Exceptional Case

In the foregoing discussion we have used the phrases "as a rule," "as a group," or "as a class," and similar qualifying expressions, quite generously, realizing that gifted children are identical with normal children at least in the one respect of 'proving the rule' by the occasional exception. As has already been pointed out, many of the erroneous opinions pertaining to the traits and characteristics of the gifted have arisen from the tendency to generalize too hastily from these exceptional cases. It would be as foolish as it is untrue to say that there are no problematic cases among children of superior mental endowment, but the contention that emotional instability, social and physical immaturity is typical of the gifted is equally foolish.

Of late, certain teachers and investigators, for example, Miss Gillingham,[9] of the Ethical Culture School of New York, have been disposed, in the light of their experience with exceptional cases, to criticise the growing tendency in our schools to segregate, accelerate, or otherwise specially provide for children of superior mental endowment. However, a careful study of these various investigations[10] leads us to two important considerations when we discuss the case of the problematic gifted child: (1) the proportion of gifted children who do not adjust themselves readily to their environment is no greater than the proportion of similar cases found among normal and dull children; and (2) the outlook for these cases is a hopeful one, since a large majority of them show improvement, frequently very marked, when their difficulties have been carefully diagnosed and prescribed for by a competent specialist.

In the light of these facts does it not follow that, instead of abolishing the policy of special provision, we should pursue it to its ultimate and logical conclusion—the careful, scientific study of every individual, an intelligent and sympathetic understanding of his difficulties, and patient over-sight and helpful guidance until his necessary adjustments have been made? As we progress toward that distant day when adequate provision will be made for every child, we shall see all our exceptional children—dull, normal, and gifted alike—come more fully into the natural heritage that is theirs.

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[9] Gillingham, Anna. "Educating the gifted child." *American Review*, July-August, 1923, p. 401-412. See also, *J. of Educ. Psych.*, 10: May-June, 1919, 237-252.

[10] See Van Alstyne, Dorothy. "A study of ten gifted children whose school progress was unsatisfactory." *J. of Educ. Research*, September, 1923; and Cleveland, Elizabeth. "Some further studies of gifted children." *J. of Educ. Research*, 4: October, 1921, 195-9.

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CHAPTER VIII

THE DEMOCRATIC IDEA AND THE EDUCATION OF GIFTED CHILDREN

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A great controversy has arisen not only in the press but in every country village over the proposal to differentiate American education on the basis of intelligence tests. The opposition may easily be dismissed by confident exponents of a new program of education as another instance of the ignorance and superstition of the average man or it may be examined more closely to discover if possible the significant sources of its strength and persistence. In the heat of such controversy it is seldom unwise to turn away from the central matter of dispute for a moment in order to discover the underlying principles to which parties in the dispute will agree. No one can fail to notice that this particular controversy arouses an emotional attitude as soon as it is presented. The presence of emotion can but obscure the issue and thus breed further emotion. The vicious circle once established seems likely to prevail. It is the part of a good judge to look upon the emotion itself as a part of the evidence—evidence presented by both parties. Like most emotional reactions this is probably based on misunderstanding.

Although the misunderstandings may be many, there are two common ones which deserve careful study. The first of these is the popular distortion of the idea of democracy. This misunderstanding is by no means confined to the untutored, but is often found in high places; and the friends of the new educational program misinterpret democracy as often as do those who oppose it. The second source of disagreement is concerned with the methods proposed for carrying the new plan into effect. A hasty conclusion that gifted children should be taken aside and given an education of a peculiar kind is bound to arouse hostility because so many people look upon the graded school as an indispensable instrument of democracy. The graded school seems to them to give each child an equal chance with all the others and there is a vague, though substantial discernment that each must be given an equal opportunity in a truly democratic society.

The typical introduction which the plain man gets to the theory of educational classification on the basis of the intelligence tests is in some such form as follows. He is told that the declaration of a democracy that men are born free and equal is a particularly indefensible form of pious sentiment—that we have now discovered that men differ greatly among themselves—that a new instrument in the hands of a few psychologists makes it easy to rank men in a series from high to low—that about nine-tenths of the people are so low in intelligence that they ought not to be allowed to manage their own affairs—that the value of a person is directly proportional to his position in the scale of intelligence—that the psychologists are ready and eager to undertake the task of reforming the schools and, through them, the state itself. This array of propositions sets forth nearly all the possible misunderstandings of the philosophical theory upon which our government and particularly our schools were founded. All of these statements have been made more or less frequently by the unwise expounders of the new faith and none of them may be said to stand the test of rigorous examination.

The clearest expression of the democratic philosophy of education and government is probably to be found in the works of Rousseau. Here we have the rhetorical form of political and social theory which was embodied in our public documents—the phrases around which cluster so many heated disputes. The rhetoric of the French and American revolutions may be examined almost between the covers of a single book and that book was written by the great maker of phrases—Jean Jacques Rousseau. He was, however, much more than a maker of phrases. He has paid the price of this facility in the use of words in being widely misunderstood. It is so easy to get a superficial knowledge of Rousseau that a thorough knowledge is seldom found. For instance, a well-known and very influential public speaker recently made the following

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statement before a large audience: "Rousseau believed that all men are born free and equal but *modern science* has revealed the falsity of this contention." The well informed student of democracy must have cried out, "In that case, a casual reading of the *Emile* would have revealed as much as modern science has. And if anyone should take the trouble to read *The Social Contract* and *The New Heloise*, he might have advanced beyond modern science." The following extract from *The New Heloise* on the question of individual differences is unambiguous.

"Even if all this premature instruction were as good for their minds as it is actually harmful, it would still be a great mistake to bestow it on all children indiscriminately and without regard to their individual differences. Apart from general human characteristics, each individual is born with a distinctive temperament which determines his genius and character. There is no question of changing or restricting this temperament, only of training it and bringing it to perfection."[1]

Such passages may be found so frequently throughout the writings of Rousseau that a sober interpretation must rest upon a careful analysis of what Rousseau meant by the phrase "free and equal." There is not the slightest evidence that he believed that men were physically, mentally, morally, economically or socially equal. What, then, do plain words mean? Rousseau was clearly postulating metaphysical freedom and equality as a basis of an intelligible social order not as a description of an actual order. This is the heart and soul of the democratic theory.

This postulate of freedom and equality was the net result of several lines of influence brought together in Rousseau's brilliant and active mind. In the first place, he was familiar with the tradition of philosophy from Descartes to Hume. In the second place, he was saturated with Plato's thought. In the third place, he was painfully conscious of the long struggle of man to escape the injustices of external restraint. The philosophical atmosphere which Rousseau breathed was charged with the political speculation of Hobbes and Locke on the one hand and the discussion of mechanism and teleology by Descartes, Spinoza, and Leibnitz on the other.

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[1] *The New Heloise*, Part V, Letter 3, Archer translation.

In 1651, in the midst of the English Reform movement, Hobbes had written: "Whatsoever, therefore, is consequent to a time of war where every man is enemy to every man, the same is consequent to the time wherein men live without other security than what their own strength and their own invention shall furnish them withal. In such condition there is no place for industry, because the fruit thereof is uncertain, and consequently no culture of the earth, no navigation nor use of the commodities that may be imported by sea, no commodious building, no instruments of moving and removing such things as require much force, no knowledge of the face of the earth; no account of time, no arts, no letters, no society, and, which is worst of all, continual fear and danger of violent death, and the life of man solitary, poor, nasty, brutish and short."[2] Hobbes goes on to argue that at such a price life is not worth what it costs and proposes justice as a basis of society in place of power. Justice is a condition secured through contracts administered by delegated power. Such a condition is made possible only by the supposition of equality before the law. Here was a political philosophy which later found embodiment in English and American institutions of government.

In continental Europe during the seventeenth century philosophical inquiry turned to consider the nature of individuality. Spinoza and Leibnitz, in particular, were defining individuality as the principle of organization in nature. Each individual thing, whether living or dead, was seen to possess its individuality in and through this principle of organization. Leibnitz set all the society folk by the ears when he announced that no two leaves could be found which were exactly alike. Among all the leaves of the forest could it possibly be that no two were alike? Similar, indeed, they were, but not identical—each one revealing some idiosyncrasy of organization—some pattern of uniqueness. The hypothesis of identical and interchangeable parts of nature was bowed out of the universe. As men became convinced that each thing, however insignificant, was an irreplaceable unit of organization, they got a new sense of value and a new respect for all things, including man. This principle of organization was called by Leibnitz the *monad*

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[2] *Leviathan*, Ch. XIII.

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and was declared to be an active principle operating within the individual teleologically in order to realize the organization of the universe into the form of the monad. The most universal monad was called the "monad of monads." Each individual was a perfect reflection from its own peculiar angle of the supreme principle of organization. This philosophy was radically teleological, although Leibnitz did not find the purpose outside of the visible universe after the manner of the deist. The teleology was internal or immanent.

Combine the English theory of contract as a basis of government with the continental theory of immanent teleology and we get Rousseau's doctrine of freedom and equality. The doctrine of freedom is a teleological view of human nature, *i. e.*, that in the order of nature each individual has an ultimate and inalienable right to be itself. The doctrine of equality is uttered in the same breath. Having reached this point in his thinking, Rousseau faced the question—Shall the bad man also be allowed to be himself? and answered by denying the existence in fact of bad men. Evil was introduced into the social order by unwise social provisions. We must sweep the board clear and begin anew with the education of the child and in his education we must follow nature.

If we follow nature, however, we will certainly build up a society in which justice shall prevail and thus the worth of no individual shall be sacrificed. Cast on the lurid background of his generation, the direct antithesis of justice was for Rousseau—*force*. Force challenged the right of the poor, the weak, and the ignorant; justice proclaimed that right and held out hope of realizing it.

The metaphysical postulate of freedom meant, therefore, that a just society will guarantee to each individual his right of existence. Rousseau fully appreciated the logical necessity of defining in great detail the real nature of a man and the process by which the dialectic of experience reveals that nature. This is his educational contribution. Perhaps no one now supposes that Rousseau gave a correct account of the nature of man or that his educational program was practicable, but the fact remains and is generally recognized that the logical structure of his reasoning was sound.

The metaphysical postulate of equality implies that the value of the individual person is absolute and unequivocal. This idea was later formulated by Kant in his famous dictum that justice requires that each man should be treated as an end and never as a means to some other end. It was also directly embodied in constitutional provisions for free speech and press, trial by jury, and the other institutions of representative government.

If this be a fair account of the central meaning of the phrase "*free and equal,*" it follows that democracy, more than any other form of government, is in a position to recognize individual differences. Indeed, if I mistake not, it is the only theory committed to recognize and *preserve* those differences. It holds that each individual is of infinite value because he embodies a unique interpretation of reality. It, therefore, commands mutual respect, tolerance, and reverence as the cardinal virtues of the citizen.

Moreover, all suggestions that science has proved that the democratic theory is false are based upon a gross misunderstanding of the sources of democracy. Modern science has proved nothing of the kind. Any man is at liberty to challenge the assumptions of democracy, as many in fact do challenge them. The alternative, however, is not scientific knowledge, but another set of assumptions, logically implying a totally different social order. Thus, we may deny that the weak have rights which the strong are bound to respect or that all persons are equal in value. In the last analysis, it resolves itself into a matter of temperamental preference for one type of society or the other. I am perfectly willing to express a preference for democracy and its ideals as compared with the savage reality of right based on power.

A tactical error has undoubtedly been made in suggesting that the findings of intelligence testing are anti-democratic in nature. The first assumption of democracy is that of individual differences. It is also misleading to suggest that differences in intelligence are the only or the most significant differences. There are plenty of situations within the experience of every school teacher in which a difference in family tradition, for instance, is pedagogically more significant than is a difference in mental age. The radical proposal to reconstruct education and government on the basis of differences

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in intelligence arouses the greatest suspicion and emotional antagonism because it implies a rejection of the Kantian metaphysics of value. This will continue to be the case until the plain man is convinced that intelligence is invariably combined with nobility and a sense of justice. As yet there is no evidence to support such a belief. In fact, the evidence is mainly to the effect that what the psychologist calls intelligence is but a form of power in the exercise of which the weak will shamelessly be used for the benefit of the strong. From this point of view and this only is the program of special educational advantages for the "superior" anti- or undemocratic.

A large part of the emotional reaction, however, is due to a confusion between a democratic education and the graded school. The story of this confusion is a long one and is mostly the story of the particular type of school organization which has grown up in America. We have come almost to identify democracy with uniformity because of the accident of school organization. Spiritually, as indicated above, the two ideas are so far from being identical that uniformity has really much more in common with the monarchial form of government than it has with the democratic. The protest of the philosophical democracy was a protest against a social order in which a man was just a member of a class and no more—just one among many—a mere thing.

From this angle the graded school has probably done more to weaken the true effect of democracy than any other American institution. If it were carried out to its logical conclusion, it would overthrow democracy completely. The first postulate of the graded school is that of homogeneity or identity. I mean that such a postulate would be fatal to democracy were it not that it is maintained for but a short period in the day or the life of an individual. Beyond the reach of its heavy hand the child seeks and finds scope for the development of his particular individuality. The home, the church, the street, and a thousand other influences coax from him his loyalties and his talents until he develops his own life and adds it to the total which brings variety, value, and humanity into an otherwise barren existence. The weakness of the graded school is its strength. Theoretically, it is an abstraction from life, but practically it never achieves complete abstraction because it is unable to secure homogeneity.

Among the several kinds of homogeneity proposed as a basis of instruction probably the graded school is founded on the least objectionable one, *i. e.*, pedagogical homogeneity. Such a homogeneity is the logical basis of instruction—that which is common is a degree of mastery in school arts. Other forms of homogeneity would not only be more objectionable from the democratic point of view but would also impede progress in the school arts. No one has perhaps proposed a school divided on the basis of height or weight or color of eyes, although these are obvious ways in which children resemble each other. They are not proposed because such a division would throw the whole process of instruction into confusion. Other bases of homogeneity, however, have been proposed and actually employed which are only slightly less abstract from the teaching problem than that of height or weight.

Probably the most ancient basis of educational selection is economic or social. From the teacher's point of view it is not a bad basis of selection, for there is a strong probability that the members of a clearly defined economic or social group have common purposes and a considerable body of common information. The weakness of this theory of school organization is to be found in its political and broadly human results. It was against this very theory that Rousseau was in rebellion. A house divided against itself cannot stand. If the school perpetuates the aristocracy of wealth, it advances the hour of revolution and social disintegration.

Another basis of school organization is that of religious affiliation. This is only slightly less productive in social and political misunderstanding than the theory of economic selection. If the story of human degradation were told, many chapters would have to be written of the degrading influence of religious warfare. Sectarianism has dragged its slimy form across the whole field of human history. It begets bigotry, intolerance, irreverence, and war.

The newest proposal as a basis of school organization is that of psychological homogeneity. This modern movement for educational selection is substantially that which Plato proposed in ancient Athens. If we have a more exact method by which we can discover the 'philosopher-king,' we are no better off than Plato was after we have discovered him. The crux of this theory is now, as it was then, a lack of evidence that the 'guardians' will cease to be moved by selfish and unjust desires. Plato supposed that the artizan class possessed one virtue, the soldier class an added virtue, and the governing class all of the virtues. This is a supposition contrary to fact. Human nature is not so simple as that. The parallel between man and society breaks down because the 'guardian' in society corresponds not merely to the head in man, but possesses the passions and appetites of men also. Similarly, the artizan has his bit of wisdom as well as his appetites. Let it be admitted, however, that the political implications of this new theory of selection are true and beneficent; it does not follow that the theory is pedagogically desirable.

Effective group teaching requires common interest and common knowledge. The economic or the religious basis is more likely to secure common interest, common loyalty, and common purpose. The traditional graded school is more likely to secure common knowledge. The educational group which satisfies both of these requirements best is the family. Here learning goes on at different levels but effectively because of common interest and common "apperceptive mass." The graded school has sacrificed the common interest in order to secure a common basis of knowledge. This was done under the influence of the Herbartian tradition. This tradition also gave hope of securing common interest through the perfection of teaching method. It still remains a fact that a good teacher can more easily dispense with common interest than he can with common knowledge. For a poor teacher both are indispensable from the beginning. Common interest, however, can quite readily be secured if one has even an elementary insight into human motives. The teacher calls out the most universal longings and devotion of the human heart and thus prepares the mind to receive the new knowledge. Neither of these requirements is guaranteed by grouping on the basis of intelligence tests. Nevertheless, there is no reason why such a grouping should not be modified by other principles in such a way as to secure a maximal degree of common interest and knowledge.

Daily contact with a school composed of children having practically the same mental age or the same intelligence quotient will convince anyone that a teacher would be mad to suppose that the school is pedagogically homogeneous. Two children having the same intelligence quotient are just as likely to present widely different pedagogical problems as any two children taken at random. It would be just as safe pedagogically to group children together according to height as according to mental age if that were the only consideration in each case. Selection on the basis of intelligence must be modified by common sense, social discretion, and a hundred other considerations which suggest themselves to any practical teacher. Carried out in the abstract and formal way in which it has sometimes been suggested, the scheme would fall of its own inherent weakness. But it will never be so carried out, for the recalcitrant nature of reality saves all our pet schemes from a *reductio ad absurdum*.

If the foregoing outline is reliable, there is nothing undemocratic in a proposal to provide education as perfectly adapted as possible to the needs of each individual. Indeed, it is hard to discover any educational program which is more in the spirit of democracy. The suspicion that the proposal is undemocratic is based upon a too narrow definition of individual differences—a definition which suggests that some individuals are *worth* more than others or that some are to use and others to be used for purposes in which they do not share.

It is also clear that the graded school is not indispensable in a democratic scheme of education. It is rather made necessary by the task of training the largest possible number with the least possible expense. It is, in fact, based upon similarity in educational achievement and no proposal has been made of a better basis of grading. Some have been proposed which would tend to erect barriers of misunderstanding between groups in society and still others which offer minor degrees of plausibility.

The modern public graded school, with all its faults, is probably the best instrument of democracy in producing a society characterized by literacy, common aspirations and loyalties, mutual toleration, and respect. It certainly admits of great improvement as increasing resources provide more teachers and more individual attention. To this end we need further study of individual differences as well as a clearer definition of the common purposes of men.

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SECTION II.—SPECIAL STUDIES

CHAPTER IX

THE PHYSICAL AND MENTAL TRAITS OF GIFTED CHILDREN

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ACKNOWLEDGMENTS

This research was made possible by two subventions from the Commonwealth Fund, totaling $34,000, supplemented by $8,000 contributed by Stanford University.

The work here summarized is the product of many hands. Dr. Truman Lee Kelley has acted as assistant director of the research and has rendered invaluable service in the treatment of data. The field work was done by Florence L. Goodenough, Helen Marshall, Dr. Dorothy Yates, Florence Fuller, and other assistants. Dr. G. M. Ruch assisted in the preparation of the general plan of the study. The character, personality, and interest tests occupied for two years the time of Mr. Vernon Cady, Mr. A. S. Raubenheimer, and Mrs. Jennie Benson Wyman. The parallel biographical study is being carried out by Catherine Cox. The medical examinations were made by Dr. Edith Bronson, of the University of California Medical School, Department of Pediatrics, and Dr. Albert H. Moore, of the Hollywood Medical Group. Dr. Bird T. Baldwin had charge of the anthropometric measurements. The writer is particularly indebted to Miss Goodenough for assistance in summarizing results.

METHODS AND SUBJECTS

The purpose of the research was to locate approximately 1,000 children of very superior intelligence (of I.Q. 140 or higher); to secure for each child extensive psychological, educational, physical, and social data; and afterward to follow the careers of the children as far as possible into adult life. It was desired to secure as nearly as possible *representative* gifted children, in order that we might have a basis for generalizations with respect to the kind and amount of deviations which such children show when compared with the general population of school children. There is reason to believe that the differences of opinion to which various investigators have been led with regard to such children have been due in part to their use of groups which were not representative of gifted children in general. As a basis for educational treatment it is obviously very important to know what physical and mental traits hold for these children as a class.

Methods were prepared and assistants trained between June 1 and September 15, 1921. Between September 15, 1921, and July 1, 1922, from four to seven field assistants canvassed the cities of Los Angeles, San Francisco, Oakland, Berkeley, and Alameda. At the same time various smaller cities were canvassed by volunteer assistants. In all about a quarter of a million school children were sifted for subjects.

More than 1,300 new subjects of the desired degree of brightness were secured, in addition to about 150 who had been located previously. About half of the 1,300 were located through the help of volunteer assistants in the public schools of the state, and by methods which were not entirely uniform.

The main experimental group of 643 cases was located by a rather rigidly uniform method of search. This group is our main reliance for determining how gifted children in general compare with unselected children of corresponding age, (1) because the data for them are more complete, and (2) because they are known to be more nearly representative of all gifted children in the school population. Our summary is therefore limited entirely to data collected for these 643 children.

This group was located in the cities of Los Angeles, San Francisco, Oakland, Berkeley, and Alameda. Grades III to VIII, inclusive, were canvassed rather thoroughly in these cities, and Grades I and II less thoroughly. The plan was to give the National Intelligence Test or Terman Group Test to four children from each classroom; namely, the youngest, and the three nominated by the teacher as brightest, second brightest, and third brightest, respectively. As it turned out, usually only two or three from a class-

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room were tested, because the youngest was often nominated also for brightness, and because so many classrooms were obviously lacking in children of superior ability. Children ranking high in the National Test were then given an individual examination by the Stanford-Binet. Those earning an intelligence quotient as high as 140 were included in the study, also a few testing slightly lower. The proportion qualifying was about one in two hundred. Check experiments indicated the method used probably gave us between 80 and 90 percent of all the pupils who might have qualified had the entire school population been tested. What is true of this main experimental group is therefore probably true of gifted children in general.

The following data were secured:

1. National Intelligence Test or Terman Group Test;
2. Stanford-Binet Intelligence Test;
3. Stanford Achievement Test (a two-hour educational test covering the main subjects of the pre-high-school curriculum);
4. General Information Test (covering general science, literature, history, and the arts);
5. A battery of seven 'character' tests (bearing on such traits as honesty, tendency to overstate one's ability or knowledge, moral judgment, and social attitudes);
6. An objective test of interest;
7. A test of interest in, and knowledge of, plays, games, and amusements;
8. Thirty-four anthropometric measurements (made under the direction of Professor Bird T. Baldwin, of the University of Iowa);
9. A one-hour medical examination (by trained pediatrists working under the direction of an advisory committee from the Stanford medical faculty);
10. A sixteen-page Home Information Blank, filled out by the parents, including, besides extensive data on early development and family history, ratings of child by parents on twenty-five physical, mental, and moral traits;

11. An eight-page School Information Blank, filled out by the child's teacher, including, besides data on the child's school success, ratings by the teacher on the twenty-five traits which were rated by the parents;

12. A four-page Interest Blank, filled out by the child;

13. A two-months' reading record kept by the child;

14. Ratings for about 200 of the homes, on the Whittier Scale for Home Grading.

The foregoing schedule calls for some 65 pages of test and measurement data and for some 35 pages of other information with respect to each child. For all the items except 9, 10, and 14, data have also been secured for control groups of 500 to 1000 unselected children. Obviously, only the barest sketch of our findings can be set forth here.

The distribution of the 643 cases by age and sex is as follows:

Age	Below 5	5–5.9	6–6.9	7–7.9	8–8.9	9–9.9	10–10.9	11–11.9	12–12.9	13–13.9	Total
Boys	8	11	16	27	42	62	75	59	38	13	351
Girls	6	7	19	20	43	42	54	51	36	14	292
Total	14	18	35	47	85	104	129	110	74	27	643

The small number below 8 is explained by the fact that Grades I to III were not fully covered, the small number above 12 largely by the fact that many bright children of this age have been promoted to the high school.

The intelligence quotients, corrected somewhat for the greater difficulty of the Stanford-Binet in the upper ranges, were as follows:

	Boys	Girls		Boys	Girls
200–204	0	1	165–169	15	12
195–199	0	0	160–164	27	18
190–194	0	2	155–159	31	34
185–189	1	0	150–154	86	46
180–184	7	2	145–149	75	79
175–179	2	5	140–144	80	75
170–174	11	9	135–139	16	8
			130–134	0	1
			Total	351	292
			Mean[1]	151.78	151.6
			Standard deviation	9.17	10.23

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[1] The means of the uncorrected quotients are about 4 points lower.

It will be noted that there is a marked excess of boys (122 to 100), but that the *three highest cases are girls*. Later testing of siblings of these children added 20 girls and 9 boys to the 643 cases, giving 360 boys and 312 girls, or 672 in all. This is in the proportion of 115.38 boys to 100 girls. (The standard deviation of the proportion is 1.92). In the public schools attended by these children the proportion is 104.55 boys to 100 girls.

PHYSICAL DATA

Birth and early infancy. (Data from Home Blanks and Medical Report.) No clearly evident deviation from normal was found, except one pound excess of birth weight. Fifty-two percent were breast-fed exclusively. Seventy-four percent had "excellent" or "good" health during the first year, 16.6 percent "poor" or "very poor" health. Walking occurred slightly earlier than for Mead's normals, but the median age for "first words spoken" was for boys four months, and for girls five months, below Mead's medians for sexes combined. However, wide variability was found.

General health. (Data from Home Blanks and School Blanks.) Forty-four percent of gifted boys and thirty-four percent of gifted girls had had adenoids removed, as compared with 28 percent of control boys and 17 percent of control girls. The figures for tonsil operations showed similar differences. There is little difference between gifted and control in frequency of colds and headaches. Somewhat more of the gifted have defective vision, but the control more often have defective hearing, symptoms of general weakness, and organic disease. Eight percent of the gifted have had scarlet fever, 7 percent diphtheria and 4½ percent pneumonia. Nearly a third have suffered accidents, and nearly 8 percent have suffered bone fractures. The inference is that accidents and infectious diseases are probably less likely to jeopardize normal mental development than students of mental deficiency have generally believed.

Reports from 600 gifted show 654 surgical operations, the largest number being for adenoids and tonsils.

The gifted are less often rated as "nervous" than are the control. The proportion of stuttering, chorea, excessive timidity, marked fears, and tendency to worry is about the same in the two groups. Muscular twitching is slightly more common with the gifted. Daily sleep of the gifted is from 30 minutes to an hour (at different ages) in excess of the norms based on records from 2,692 unselected children.

Medical examinations. Of the 643 cases, 591 were given a one-hour examination covering several score of different items. Unfortunately, it was not possible to give the medical examinations to a control group, and the published reports of school medical examiners do not afford a very satisfactory basis of comparison because of the lack of thoroughness and objectivity in such examinations. In general, however, the examinations given to these subjects seem to indicate a rather small number of physical defects and diseased conditions.

Taking as a rough criterion typical data reported in the literature of school medical examining, these children appear to be *above the average of children in general with respect to health.* Defective hearing, nasal obstruction, decayed teeth, rickets, malnutrition, and lung symptoms, are decidedly rare. Visual defects, tics, stammering, and chorea occur in about the expected number. Only about 4 percent have pathological tonsils, which is largely accounted for by the fact that more than 50 percent have had their tonsils removed. The figures for adenoids are similar. About 10 percent have, to a "marked degree," one or more of the following growth defects: fatigue posture, scoliosis, lordosis, kyphosis. About 6 percent give indications of hyperthyroidism. Heart, blood, and urine examinations disclosed few serious conditions. Metabolism tests of 94 unselected ten- and eleven-year-olds yielded 2 percent "bad" and 11.7 percent "fair." The remainder of the 94 were average or better.

Of the 12-year-old gifted boys, 44.4 percent are pubescent (pubic hair present, but not kinky), as compared with 15.5 percent found by Crampton for unselected boys. For our boys of age 13

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the proportion is 71.4 percent as compared with 27 percent of Crampton's cases. The proportion of prepubescents for the gifted is 55.6 percent at 12 years and 7.1 percent at 13. Crampton's figures for the same ages are 75 percent and 48 percent. In the case of the girls, the following figures for menstruation were found for those who had reached various ages:

Age reached when examined.......	10	11	12	13	14	15
No. cases	179	136	89	50	12	3
Percent menstruated	1.1	8.9	38.2	72	66.7	66.7

Anthropometric measurements. These show a superiority of the gifted group over Baldwin's unselected cases, in most of the 34 measurements taken, but at this writing the data have not been fully summarized.

CHARACTER AND PERSONALITY TESTS

It seemed so desirable to have objective data on character and personality traits that we have devoted a considerable proportion of our time to this division of the research. The tests given and the general trend of results are indicated in the following paragraphs.

1. *Overstatement test* (Raubenheimer-Ruch). (a) The children were asked to check the books they had read in a list of fifty titles. Twenty of them were 'faked.' (b) Eighty questions were given of the form: "Do you know who discovered America?" The directions were: "If you know it *very well* mark it 2; if you know it fairly well, mark it 1; if you know nothing about it, mark it zero." Later, in test B, eighty check questions were asked, of the form: "America was discovered by Balboa, Columbus, Washington, Drake." These may be considered tests of conceit, or of honesty of report. A control group of 533 children was tested. The results showed in both tests slightly better scores for the gifted of both sexes and at all ages.

2. *Raubenheimer test of questionable interests (books).* In each of two exercises, 10 fictitious book titles were arranged in order by each subject to indicate which he would most like to read, which next, etc. The titles ranged from those suggesting very questionable

content to those of the most innocent and wholesome type. A 'true' rank order for wholesomeness had previously been determined on the basis of adult judgments. Sample titles are (unwholesome) "Dick Jones, his gang, and the cops;" (wholesome) "The scout that saved his camp." The results showed 74 percent of the gifted above the median of the control group.

3. *Raubenheimer test of questionable interests (companions).* This test was similar to No. 2 above, except that eight brief descriptions of children were used instead of book titles. These were to be ranked to show order of preference for the hypothetical children as 'chums.' Two samples follow:

(Unwholesome) "*Brick* is fifteen years old and is a real dare-devil. He does not care much for school work, and wants to get out. He often goes off with the circus and gets around by picking up rides. He thinks he will get right away now, if he can only find a chum to go with him."

(Wholesome) "*Dick* joined the Boy Scouts as soon as he was old enough. He did not like it at first; the drills and the rules were hard. Now he is a troop leader and is planning a camp in the mountains next summer."

Results showed 81.3 percent of the gifted above the median of the control.

4. *Raubenheimer test of social attitudes.* In 24 items like the following the subject was asked to mark the line which showed most nearly how he felt about the person or thing in question:

Policemen {
......They have it in for the kids.
......They are glad to help you out.
......It is fun to fool them.
......They are just big bluffs.

The results showed 90.1 percent of the gifted above the median for the control.

5. *Voelker-Cady test of conscientiousness.* The children, in groups, were given a large sheet of paper containing circles of various sizes. The task was to note the location of the circles and then to close the eyes and make a cross in each circle. In another test rectangular lines were to be traced with the eyes shut. In neither test is much success possible without 'peeping.' As the tests are

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given, temptation to disobey instructions is fairly strong, especially as the subjects are purposely not closely watched during the performance. Results showed the gifted *far above the control* at all ages.

6. *Woodworth-Cady test of emotional instability.* This test was Cady's modification of the question list devised by Woodworth as a test of psychopathic tendencies in soldiers. The Cady revision is especially adapted to school children. Exactly 75 percent of the gifted secured better scores than the median of the control group.

7. *The Wyman test of interest.* Words were selected which yield, when used as a free association test, responses that can be scored to show the relative and absolute strength of interests along intellectual, social, and activity lines. The stimulus words chosen are of the 'balanced' type, in the sense that each of them readily provokes associations in any of the three directions. It was devised to find whether the gifted child's interests were either relatively or absolutely weak along social and activity lines. *Gifted children show a more vivid and intense interest in all three lines than do unselected children of corresponding age;* in other words, the development of intellectual interests has not brought about an atrophy of social and activity interests.

All of these tests rate from fair to excellent in reliability and have been demonstrated to have considerable validity. Besides being given to the control group, all but the last named have been given to delinquents, to school incorrigibles, and to special groups selected as showing outstanding excellence of character traits.

8. *Test of interest in, and knowledge of, plays, games, and amusements.* The subjects rated 90 play activities with respect to their interest in them, their knowledge of them, and the time devoted to them. Then followed an information test on plays and games. The analysis of results involved the use of masculinity indices, maturity indices, and indices of sociability and activity as regards play interests. Masculinity indices of gifted and control groups (sexes taken separately) show no significant difference. The maturity indices are from one to two years higher for the gifted than for the control, and are somewhat higher for boys than for girls. The gifted are somewhat less interested than the control

pupils in the more active plays and somewhat more interested in intellectual and sedentary games. The gifted excel greatly in all kinds of play information, although they devote a little less time to play than do children of the control group.

9. *Trait ratings.* Both gifted and control were rated by parents and teachers on twenty-five physical, mental, moral, and character traits. The gifted are rated somewhat higher by teachers than by parents on about half the traits, but lower on a few. Both on parent and teacher ratings the gifted excel the control at all ages in mean ratings on most of the traits, especially in "general intelligence," "desire to know," "originality," "will power," "perseverance," "desire to excel," "sense of humor," and "common sense." Gifted girls are rated higher than gifted boys on a majority of the traits, and their ratings more often improve with age. The control girls, on the other hand, are not rated significantly higher than control boys. Parents and teachers agree closely with respect to the traits which are rated highest and lowest (rank order correlation, .75). Other correlations show that intelligence far outweighs sex in determining the traits in which a child will be rated high or low.

We believe that the results of this division of our study, especially of the Raubenheimer-Cady-Wyman tests, have an important bearing on the educational treatment of gifted children. They strongly suggest that *the danger of over-intellectualization at the expense of normal development along social and moral lines is probably much less than some have believed it to be.*

HEREDITY AND SOCIAL STATUS

Racial origin. There is marked excess of English, Scotch, and Jewish parentage. A tenth of our main group are Jewish, as compared with about 5 percent in the general population of these cities. The proportion of Mexican, Spanish, Italian, Portuguese, and Negro origin is very low. Only 26.3 percent of the American-born parents of gifted were born in the country or in towns of less than 1000. The corresponding figure for grandparents was also low, 28.8 percent.

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Occupational, social, and economic status of parents. By the Barr scale of occupational intelligence, the average parent of the gifted rates about on a par with a "librarian," while the average adult male of the same cities had a computed occupational index on a par with that of a "metal finisher," "baker," or "plasterer."

The median family income, based on reports for 182 families, who may be taken as fairly representative of our group, was about $3200. A fourth were above $5200 and a fourth below $2100. Eight were below $1500 and one below $500.

Ratings of 192 gifted homes on the Whittier Scale for home grading show home conditions "superior," and especially superior on the item "parental supervision." On the other hand, ratings of the neighborhoods in which gifted homes were located shows that the neighborhood surroundings of the average gifted child are less superior than his home. Teachers report 85 percent of gifted and 61.8 percent of control as having favorable home environment. About 16 percent of the gifted boys had paid employment outside the home. The pay ranged from trifling sums to $400 a week!

Parents were divorced in 5.4 percent of cases and separated in 1.9 percent additional cases, showing little difference in this respect from the general population in the cities covered.

Physical heredity. A history of insanity was found by the medical examiners for .4 percent of parents and .3 percent of grandparents. More than a third of these cases were found in 1.6 percent of the families. One sibling and 10 other relatives were feeble-minded, but no case of feeble-mindedness was found in the direct line. Nineteen epileptic relatives were reported, including one case among siblings but none among parents. One sibling and one parent had had chorea. Cancer was recorded in the case of 4 parents and 38 grandparents or great-grandfathers. A longevity index calculated for grandfathers gave an excess longevity of 2.35 years as compared with the general population. In general, the physical heredity of these children appears to be above the average.

Size of families. There were 92 families which could be reckoned as "complete." In these the number of pregnancies had averaged 3.85 per mother. The number of living children averaged 2.82. There had been 44 deaths, and 46 miscarriages (of which 6 were admittedly induced). The deaths which have occurred under the age of five years in these families represent a mortality of 11.9 percent for boys and 5.5 percent for girls, as compared with 17.03 percent for boys and 14.65 percent for girls in the general population.

Age of parents. The mean age of father at birth of gifted children was 33.66 years; of mothers, 29.01 years. A quarter of the mothers and 10 percent of the fathers were under 25 years.

Mental heredity. We have already noted the relative freedom of these families from mental defect. That they represent an intellectually superior stock is shown by such facts as the following: Of the 62 members of the Hall of Fame, 14, or 22.58 percent, are known to be related to one or more of our 643 children. Known relatives of gifted listed in *Who's Who* number 43. Other relatives of sufficient distinction to be listed in biographical dictionaries number nearly a hundred, including five "signers."

Our 643 subjects are furnished by 576 families. As we have already noted, later testing of 75 additional siblings in these families brought to light 29 new cases who reached our standards. This makes 672 cases in the 576 families, with many siblings not tested. Three families have furnished four subjects each and one five!

Intellectual heredity is also indicated by the education of parents and grandparents. The mean amount of schooling for fathers is 12 grades completed; of mothers, almost 12 grades; of grandfathers, 10.8 grades; of grandmothers, 9.6 grades. More than a fourth of our gifted have at least one parent who holds a degree from a college or university of recognized standing.

THE CHILDHOOD OF GENIUS

For two years we have been running a parallel biographical study of the early mental traits of the most eminent men and women of modern times. The work is being carried on by Miss Catherine Cox. We have selected for study 300 representative cases from Cattell's list of the 1000 most eminent individuals of history. Information is being sought especially along such lines as heredity, social status, rate of school progress, quality of school work as indicated by marks and honors; ability as shown by letters, compositions or poems (which will be rated against typical letters, compositions and poems written by unselected school children); breadth of interests; comparison of early interests with later performance; indications of special mental disabilities; environmental factors that may have influenced mental achievement, etc. At this date the work is not complete, but it has progressed far enough to show that our 300 eminent individuals will offer many interesting parallels to what we find frequently among our 643 children. *The data will show the falsity of the traditional view that many geniuses as children were mentally slow.*

The educational achievements of our 643 gifted children are summarized in the chapter which follows.

CHAPTER X

THE EDUCATIONAL ACHIEVEMENTS OF GIFTED CHILDREN

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This chapter deals with the educational achievement of the 643 gifted children with whom we were concerned in the preceding chapter. Part I, by Terman, gives a general summary of their educational achievement; Part II, by De Voss, describes the treatment to which the achievement test data are being subjected in the analysis of special school abilities.

PART I. GENERAL SUMMARY

Progress through the grades. The typical child of 140 I.Q. or higher enters school at 6¼ years and enrolls in the high first grade, although some enroll at once in the second or third. There is hardly any likelihood of his being required to repeat a grade, and not much likelihood of his being allowed to skip more than three or four half grades. The average progress quotient for our entire group is 114, which here means that the typical gifted child is accelerated in school 14 percent of his age beyond the norm for the cities in which they attend (*e. g.*, 1.4 grades in the case of the ten-year-old). In mental age, however, they average 48 percent above the norm.[1] The difference between 48 percent and 14 percent is 34 percent. On the face of it, one might say that the typical gifted child is under-promoted to the extent of 34 percent of his age. It is, of course, conceivable that considerations having to do with social training justify a certain amount of such under-promotion, but as far as *ability to accomplish* is concerned, it will be shown that our data prove some two-thirds of this under-promotion to be unjustified.

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[1] Or 51 percent above the norm when the "corrected" I.Q. is used. See Ch. IX.

Achievement tests. The foregoing conclusion is based upon the results of Stanford Achievement Test scores. This test was given in its published form in the case of reading, arithmetic, language usage and spelling, but the usual tests in nature study, science, history, and literature were replaced by a much more thoroughgoing test of the same kind. The probable errors of the scores on the several tests in this battery are all exceedingly low, and the composite score, therefore, offers a very accurate index of all-round educational achievement. We will consider first the tests of reading, arithmetic, language usage, and spelling.

The mean subject quotient was computed for each of the above four subjects, separately by age and sex. These means ranged chiefly between 130 and 150. The mean of the age means for reading is 144; for arithmetic, 136; for spelling, 139; for language usage, 146. The mean educational quotient is above 135. *That is, the typical gifted child has already mastered the subject matter more than 35 percent (of his age) beyond the norm for his age.* As we have seen, he is actually accelerated only 14 percent. The difference between 35 percent and 14 percent is 21 percent. Therefore, the typical gifted child is being held back more than a fifth of his age below the level to which he has already mastered his work as well as the average child is expected to do. This would seem to be a rather momentous finding.

The information test which was substituted for the corresponding part of the Stanford Achievement Test covered nature study and science, history, literature, and the arts. The test has 335 items, requires an hour in giving, and has a reliability coefficient above .90 with unselected age groups. The mean "information quotient," taking the test as a whole, is considerably higher than those found for the other subject quotients, *higher even than the mean intelligence quotient.* It is 155 for boys and 147 for girls. The gifted eight-year-old has as much general information as the normal twelve-year-old. Incidentally, it was found that this one-hour information test, which can be given and scored so easily, is one of the most reliable means at present available in identifying gifted children above the second school grade.

The extent to which unevenness of ability is found is set forth by De Voss in Part II of this chapter. Here it may be noted that the gifted child tends to run high in all the subjects. Only rarely does he drop near the average child in anything. At the same time, specialization of achievement is very marked in individual cases and is found in significant amounts slightly oftener among the gifted than among unselected children of corresponding mental age. It is possible that this may be due in part to a greater relative inequality in the amount of instruction in the various subjects, resulting from briefer school attendance; or it may be due to a greater tendency to 'ride a hobby.' Follow-up of these cases will show to what extent such unevenness of performance is prophetic of later accomplishment or of vocational aptitude.

School achievement as rated by teachers. Teachers rated both the gifted and control groups from one to seven on each subject studied. The mean ratings for the gifted are far higher in most of the subjects, especially debating, history, composition, literature, grammar, geography, reading, and arithmetic. For such subjects as music, physical training, drawing, manual training, penmanship, and shop work there is little difference between the two groups. Rank order correlations show that intelligence far outweighs the sex factor in determining the subjects in which a child will excel. Only from 1.7 percent to 5.6 percent of the gifted group are rated at various ages, as "rather uneven" or "very uneven" in their school subject abilities.

Subject interests. Each child of the gifted and control groups rated each subject from 1 to 5 according to his liking for it. Gifted children excel the control by more than 50 percent in the number of subjects which are liked. School subject preferences have considerable diagnostic value in differentiating gifted and control groups. Literature is much better liked by the gifted, as are also, though with less difference, reading, nature study, and United States history. Penmanship is least liked by the gifted. Correlational treatment of data shows that subject preference depends far more upon intelligence than upon sex. The correlation for "liked" and "easy" subjects ranges from .85 to .96.

Reading. Forty-five percent of our 643 subjects learned to read before starting to school, 20 percent before the age of 5, 5 percent before 4, and nine of them before 3. In the large majority of cases this was accomplished with little or no formal instruction. Both gifted and control groups kept a record of all books read during a period of two months. Each book read was rated by the child for its interest. The gifted read over a far wider range, especially more science, magazines, and informational books. The quality of their reading is measurably superior to that of the control children, and when they read the same books, they do so several years earlier. The gifted child is four times as likely to show marked interest in encyclopaedias, and twice as likely to be interested in dictionaries or atlases.

The mean number of books in the gifted child's home is 324. Only 7 of the gifted homes have no books, and 43 have 1000 or more.

Evidence of 'hot-house' methods. The gifted have had little formal instruction in the home and devote an average of less than two hours a week to home study of school lessons. More than 70 percent, according to the parents, have been allowed to "go their own pace" and 10 percent have been purposely "held back." The others have, as a rule, been mildly encouraged to forge ahead. It seems quite impossible to account for the intellectual progress these children have made on the theory of excessive stimulation. A few of our parents have attempted more or less forcing, but their efforts in this direction have not raised the I.Q.'s of their children above the general level of our group. In the main, our subjects have educated themselves. They have made rapid progress in learning because of their intellectual initiative and insatiable curiosity.

PART II. SPECIALIZATION OF ACHIEVEMENT

The problem. Accurate knowledge of the degree and direction of specialization of any child is valuable information. Reliable measurement of the special aptitudes and disabilities of gifted children is especially needed. On the one hand, these children have a splendid background in their high levels of general intelligence and of school achievement, and this equipment makes it imperative that any special abilities be discovered. It is in company with such general excellence that we expect the special aptitudes to reach their finest expression. On the other hand, there are fears expressed in some quarters that gifted children may be too one-sided in their development or that they with other children are made too much alike by modern educational methods with their over-emphasis on standardization and measurement. The data gathered by Professor Terman and his assistants are yielding definite and valuable facts concerning the degree to which the educational abilities of superior children are specialized.

We have approached this survey with two questions in mind. First: are the gifted children characteristically more, less or equally even in their abilities than are unselected children? Second: what is the nature of the unevenness of the abilities of individual gifted children? This question suggests the interesting hunt for children who have special aptitudes and disabilities.

In dealing with these questions it was necessary to accept some standard or 'sea level' from which to measure the amount or altitudes of the special abilities. Because of the highly selected group and the standards available for comparison, age norms were selected in preference to grade norms. The altitudes of these abilities above the age norms are measured in units which are the standard deviations of these age groups. These units are called "standard scores."[2] The advantage of the use of standard scores is that it allows us to compare directly any two scores, as, for example, 36 in language usage and 145 in spelling. In the form of 36 and 145 we are prone to judge them as very different, but expressed as standard scores, we find them each to be equal to 2 standard scores, as may be seen by reference to Fig. I.

Amount of specialization. Let us now turn to the first question stated above: How does the unevenness of our gifted children compare with that of unselected eighth-grade pupils? Kelley[3] found that "the indications are that eighth-grade children are in fact 'real persons' with specific and unique mental mechanisms." He studied a group of 96 eighth-grade children. Using the same method, we have treated the results for 100 gifted children of mental ages 14 to 15.4. The comparison of the results from the two groups shows a slightly greater unevenness of abilities in the gifted group. The difference may not be as significant as the resemblance, for, expressed in percentages, an average of 28.2 percent of the eighth-grade group showed measurable disparity between traits, while an average of 30.7 percent of the gifted children showed differences greater than can be accounted for by chance. In each group there is a sufficiently large percentage of cases showing measurable differences to encourage us to search farther for specialization in abilities.

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[2] A standard score is obtained by dividing the difference between a score and the mean of its distribution by the standard deviation. Thus: $z = \frac{X - M}{S.D.}$ when z is the standard score, X any obtained score, M the appropriate mean, and S.D. the standard deviation.

The amount of measurable differences is not the same for all the pairs of traits measured. If 31 percent of the gifted children show differences in their scores in computation and arithmetic reasoning which are great enough to be independent of such chance factors as the unreliability of the tests, and if 26 percent of the control group show a similar measurable disparity between scores in the same tests, we may say that the gifted children show a greater unevenness of ability in these two traits. Using this form of reasoning, we find that the gifted children show a greater percentage of cases of measurable disparity between the following pairs of traits, as measured by the Stanford Achievement Tests:

Arithmetic Computation and Arithmetic Reasoning
Arithmetic Computation and Word Meaning
Arithmetic Computation and Sentence Meaning
Arithmetic Computation and Paragraph Meaning
Arithmetic Computation and Spelling
Arithmetic Computation and Science Information
Arithmetic Reasoning and Word Meaning
Arithmetic Reasoning and Paragraph Meaning

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[3] Kelley, T. L. "A new method for determining the significance of differences in intelligence and achievement scores." *J. of Educ. Psych.* 14: Sept., 1923, 321-334.

Arithmetic Reasoning and Science Information
Word Meaning and Paragraph Meaning
Sentence Meaning and Paragraph Meaning
Sentence Meaning and Science Information
Paragraph Meaning and Language Usage
Paragraph Meaning and Science Information
Spelling and Science Information

The 96 eighth-grade children furnish a greater percentage of cases of measurable unevenness between the following pairs of traits:

Word Meaning and Sentence Meaning
Word Meaning and Language Usage
Word Meaning and Spelling
Sentence Meaning and Spelling
Language Usage and Spelling
Language Usage and Science Information

The gifted and the eighth-grade children have the same percentage of cases showing measurable disparity in the following pairs of traits:

Arithmetic Computation and Language Usage
Arithmetic Reasoning and Sentence Meaning
Arithmetic Reasoning and Language Usage
Arithmetic Reasoning and Spelling
Word Meaning and Science Information
Sentence Meaning and Language Usage
Paragraph Meaning and Spelling

The gifted children have not had as much school experience as the other children, and for this reason we would expect such traits as arithmetic computation, arithmetic reasoning, and spelling to show greater unevenness in the gifted group. On the other hand, the reading traits would not seem to be influenced so much by schooling.[4] From the comparisons just given we see that there is no evidence for spelling being responsible for more variability than the other achievement tests in either group. Computation and paragraph meaning each occur six times in the list of pairs in which the gifted children are more uneven. The most significant conclusion from this study is that the gifted children as well as the eighth-grade pupils have revealed measurable differences running up to 45 percent for certain pairs—a fact which makes it quite certain that a study of individuals will bring out many interesting cases of unevenness.

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[4] It is probable that the slightly greater unevenness of the gifted is partly accounted for by the fact that they ride their hobbies harder.—L. M. T.

Profiles. This promise of interesting cases of unevenness has been abundantly fulfilled. Questions concerning the unevenness of individual children have partial answers in the hundreds of profiles drawn on the plan of the figures shown here. These profiles supply graphic case studies. A brief explanation of one of them will furnish the method for interpreting the others shown.

Figure I is the profile for A. K., one of the gifted children found in the California survey. The heavy line at O in the first column has the average scores for ten-year-old children written just above it. Thus the mean score[5] for ten-year-old children on the Stanford-Binet is 10-6, the mean for Language Usage is 13, etc. The lines running parallel to the line of the mean scores mark off standard scores above and below the means. Thus, a score of 24 in Language Usage is 1 standard score, or 1 standard deviation above the mean; 36 is 2 standard scores above the mean, etc. The scores for Reading Total, Arithmetic Total and Information Total are separated by a space to indicate that they are in a different category from the other scores. The solid line which crosses the page in a very irregular course connects the points which represent A. K.'s scores on the tests indicated. This line is A. K.'s profile of abilities in so far as we have measured them. It starts at the left from a point on the perpendicular which represents a Stanford-Binet M. A. of 14-10, which is the equivalent of a standard score of 3.8. This line finds its lowest point at Computation, where the standard score is .4, which means that A. K. scores only .4 of a standard deviation above the mean for ten-year-olds in Computation. On the

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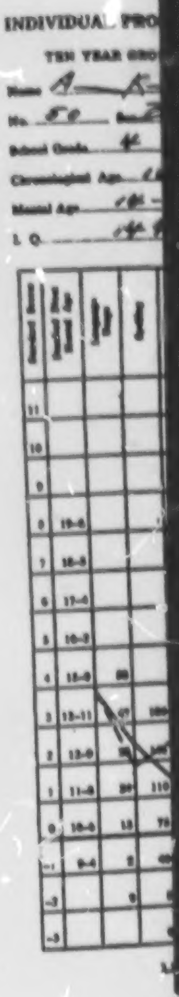
[5] The means and standard deviations are those which were found in the distributions of scores on which the tests were standardized. As the distributions were all made up of California children, they furnish a good basis for comparison with the gifted children of California.



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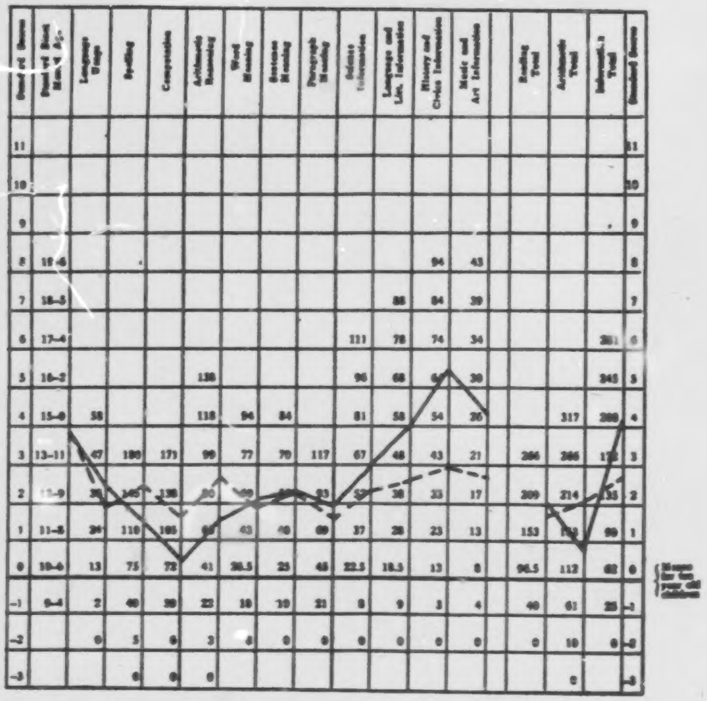
INDIVIDUAL PROFILE, USING STANDARD SCORES FROM TWELVE TESTS.

TEN YEAR GROUP

Name A—— K——
No. 50 Sex Boy
School Grade 4 H. L.
Chronological Age 10-3
Mental Age 14-10
I. Q. 144

(Means and standard deviations taken from age group 10:00 to 10:11:30. Tests: Stanford Binet, Stanford Achievement and General Information.)



LEGEND: Solid line ——— indicates obtained standard scores.
Broken line ..... age equivalent for M. A. of subject.

FIG. I

other hand, his score in History and Civics Information is more than 5 standard deviations above the mean. All of his scores in the Information tests are well above their means. Thus, the distances on the perpendicular lines between the line of the means and the profile line are the measures of comparisons between A. K.'s accomplishment and the average accomplishment of ten-year-old children.

Some might wish to compare a pupil's accomplishment with the average accomplishment of children of the same intelligence level. This comparison has been attempted by means of the accomplishment quotient. On this profile such a comparison is made. The dotted line on A. K.'s profile crosses points which are the age equivalents in scores on the several tests corresponding to M. A. 14-10. That is, these age equivalents are estimated to be the average scores of children 14 years, 10 months old. It must be remembered, however, that the units of comparison along the perpendicular lines are not the standard deviations for the distributions of scores made by fourteen-year-old children, but are still the standard deviations for ten-year-old children. We know that it is the tendency for standard deviations of the older age groups to grow greater, hence A. K.'s profile plotted on a form prepared from data secured from fourteen-year-old pupils would doubtless show the profile line to be nearer the line of the means than it is to the broken line in Fig. I.

If this profile of A. K.'s scores is a reliable picture of his abilities, it would seem that his conspicuous unevenness would reveal itself in other ways. In this case, at least, the assumption is warranted, for a review of the information furnished by A. K.'s report of his interests, his mother's ratings and report, and his teacher's testimony exposes nothing which contradicts the profile but gives much interesting evidence in its support. Both his interests and his reported readings would presage high scores in history and civics and language and literature information. He rather dislikes arithmetic. Not all of our profiles are so well supported by the supplementary information. In the main, however, the profiles showing a high degree of specialization are supported by other evidence from the Interest Blanks and the Home and School Information Blanks.

Figure II is another profile drawn on the form for the ten-year-old group. Figure III is a sample from the eleven-year-group. The

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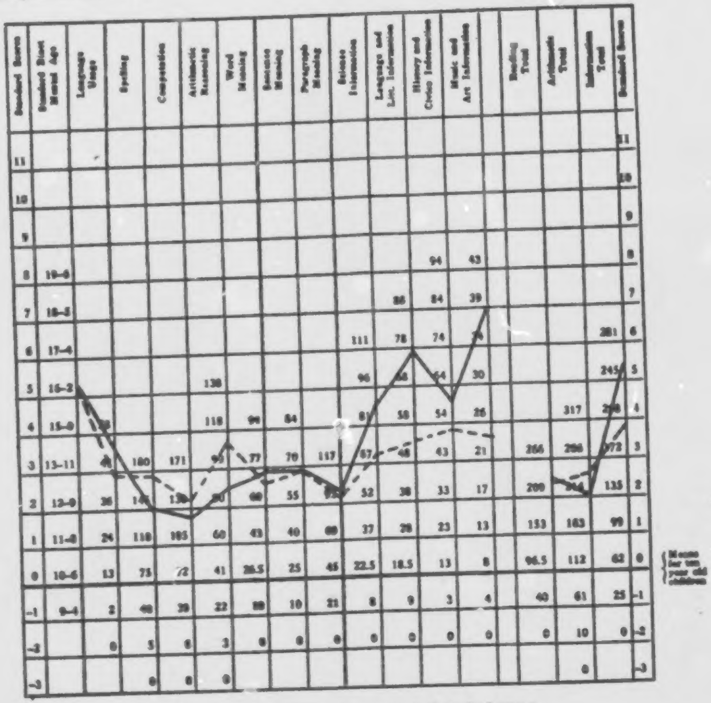
INDIVIDUAL PROFILE, USING STANDARD SCORES FROM TWELVE TESTS.

TEN YEAR GROUP

Name L—, M—
No. 382 Sex Girl
School Grade 5 H. K.
Chronological Age 10-7
Mental Age 16-6
I. Q. 155

(Means and standard deviations taken from age group 10:00 to 10:11:30. Tests: Stanford Binet, Stanford Achievement and General Information.)



LEGEND: Solid line ——— indicates obtained standard scores.
Broken line - - - - age equivalent for M. A. of subject.

Fig. II

INDIVIDUAL PROFILE, USING STANDARD SCORES FROM TWELVE TESTS.

ELEVEN YEAR GROUP

Name A—, A—.

No. 110 Sex Boy

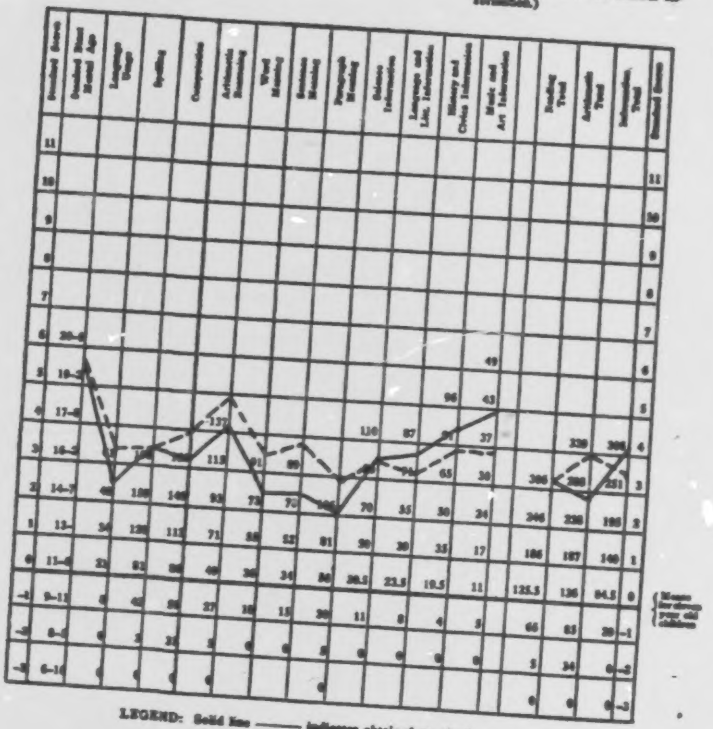
School Grade 9 H. L.

Chronological Age 11-8

Mental Age 20-4

I.Q. 174

(Means and standard deviations taken from age group 11:00 to 11:11:30. Tests: Stanford Binet, Stanford Achievement and General Information.)



LEGEND: Solid line ——— indicates obtained standard scores.
Broken line - - - - age equivalent for M. A. of subject.

Fig. III

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subject of the former is a case of highly specialized ability in music which is reflected in the score in music and art information; the subject of the latter has a very high I.Q. and an achievement of high level in all the tests, but not without interesting unevenness.

The advantages gained by using the standard scores in the profiles are numerous. From tables of the probability integrals we may find the probability of a standard score of 2.0 falling as low as its mean to be 23 in 1000. The probability of a standard score of 3.00 being as low as the mean is 1 in 1000, etc. An even more important advantage appears when we study the differences between standard scores. The method which we shall use here might be applied to any of the differences between the several standard scores on a profile.

We shall apply it only to the differences between the standard scores of the paragraph meaning and the standard scores of the other tests. For this study we must have the standard error of the differences between the standard scores. The formula[6] for this standard error is $\sigma_{d_{\infty\infty}} = \sqrt{2-r_{1I}-r_{2II}}$ in which $\sigma_{d_{\infty\infty}}$ indicates that it is the standard error of the difference between true standard scores, r_{1I} is the reliability coefficient for the first test, say the Paragraph Meaning, and r_{2II} is the reliability coefficient for the second test, say Computation. In Table I we have the needed reliability coefficients and in Table II are the standard errors.

TABLE I.—RELIABILITY COEFFICIENTS FOR ELEVEN ACHIEVEMENT TESTS AND THE STANFORD-BINET FOR UNSELECTED TEN- AND TWELVE-YEAR-OLD CHILDREN

Tests	Ten-Year-Old	Twelve-Year-Old
Stanford-Binet	.93	.94
Language Usage	.75	.80
Spelling	.95	.95
Computation	.92	.85
Arithmetic Reasoning	.88	.90
Word Meaning	.96	.94
Sentence Meaning	.87	.88
Paragraph Meaning	.94	.90
Science Information	.87	.90
Language and Literature Information	.78	.91
Music and Art Information	.65	.75

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[6] Kelley, T. L. *Op. cit.*

TABLE II.—STANDARD DEVIATIONS OF THE DIFFERENCES BETWEEN THE STANDARD SCORES FOR TEN-YEAR-OLD CHILDREN

									Information		
	Binet M. A.	Lang. Usage	Spell-ing	Compu-tation	Arith. Reas.	Word Mean.	Sent. Mean.	Par. Mean.	Sci-ence	Lang. & Lit.	Hist. & Civ.
Language Usage	.56										
Spelling	.35	.55									
Computation	.39	.57	.36								
Arithmetic Reasoning	.44	.61	.41	.45							
Word Meaning	.33	.54	.30	.35	.40						
Sentence Meaning	.45	.62	.42	.46	.50	.41					
Paragraph Meaning	.36	.56	.33	.37	.42	.32	.44				
Science Information	.45	.62	.42	.46	.50	.41	.51	.44			
Lang. and Lit. Information	.54	.69	.52	.55	.58	.51	.59	.53	.59		
Hist. and Civics Information	.58	.72	.57	.59	.62	.56	.63	.57	.63	.70	
Music and Art Information	.66	.78	.64	.66	.69	.63	.70	.65	.70	.76	.79

Making use of these data, let us re-examine the differences found in Fig. I. Here we find the standard scores for the Paragraph Meaning and Computation to be 1.94 and .38, respectively. The difference between them is 1.56. Referring to Table II, we find the standard error to be .37. Then this difference between the Paragraph Meaning score and the Computation score is $\frac{1.56}{.37}$, or 4.22, standard errors. Hence the probability is that A. K.'s ability in Computation is not as great as his ability as expressed by his score in Paragraph Meaning. Using similar calculations we have for A. K. the following data.

TABLE III.—STANDARD SCORES AND DIFFERENCES BETWEEN STANDARD SCORES ON PARAGRAPH MEANING AND OTHER TESTS AND STANDARD ERROR OF DIFFERENCES FROM FIG. I

	Standard Scores	Differences	Stand. Error of Diff.
Paragraph Meaning	1.94	..	..
Language Usage	2.46	.52	.93
Spelling	1.44	− .50	−1.52
Computation	.38	−1.56	−4.22
Arithmetic Reasoning	1.57	− .37	− .88
Word Meaning	2.11	.17	.53
Sentence Meaning	2.23	.29	.66
Science Information	3.09	1.15	2.61
Language and Lit. Information	3.90	1.96	3.70
History and Civics Information	5.43	3.49	6.12
Music and Art Information	4.32	2.38	3.66

The data of Table III tell us that the probability of there being a real difference between A. K.'s scores of Paragraph Meaning and his scores in Language Usage, Arithmetic Reasoning, Word Meaning, and Sentence Meaning are in each case slight, as compared with the probability of real differences existing between his scores in Paragraph Meaning and the other tests. Compared with his ability in Paragraph Meaning, his ability in History and Civics Information shows the greatest divergence. There can be no doubt that the differences indicated in the Profile of Fig. I are many of them very real differences. The range from 6.32 standard errors above the standard score in Paragraph Meaning in the case of History and Civics Information to 4.22 standard errors below in the case of Computation is conclusive evidence that these abilities or combinations of abilities exist in different amounts in A. K.'s equipment.

The application of this method to the differences between the Stanford-Binet scores and the scores of the Achievement Tests is an inviting field. This study is now in progress.

CONCLUSIONS JUSTIFIED BY THE STANFORD DATA

1. The data show that the physical and mental traits which characterize typical gifted children appear to warrant the belief that more intense educational effort in their behalf on the part of the school would not involve the risks which various writers have feared. The "eccentricity of genius" is largely a myth.

2. That the typical gifted child has already mastered the school work to a point more than a fifth of his age beyond the grade in which he is located shows the difficulty, if not the impossibility, of keeping such children profitably occupied without allowing them to become considerably accelerated. Enrichment of the curriculum is very important, but it is inadequate to meet the situation without acceleration. Especially serious is the danger that the so-called 'enrichment' will consist chiefly in the multiplication and extension of activities on a level too low to make any serious demands on the child's abilities. The solution would seem to lie in *enrichment of the right kind, plus acceleration.* Surely there is no good reason why most children of 140 I.Q. or higher should not enter the high school at 12 years and the university at 16. This would allow for an acceleration of approximately three years, for the average age of high-school and university entrance is about 15 and 19 years, respectively.

3. Significant specialization of achievement is far from rare, is probably indicative of specialization of ability, and may be of considerable value in educational and vocational guidance.

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CHAPTER XI

CASE HISTORIES OF GIFTED CHILDREN

Compiled by
CHARLES W. WADDLE, Ph.D.
Professor of Education, and Director of the Training Schools, Southern Branch,
University of California, Los Angeles, California

INTRODUCTORY

The method of the case history has long been successfully and beneficially employed in the literature of medicine, psychiatry, and criminology. Healy's work on delinquent children has, through its case histories especially, done a great service in bringing fuller realization of the necessity of detailed study of every delinquent if we would handle his case humanely, intelligently, and effectively. The establishment of the *Psychological Clinic*, by Witmer, and of *The Training School*, at Vineland, with their illuminating case descriptions, has had a marked influence in stimulating this sort of study. The pedagogical significance of such careful diagnoses and prognostications as one finds in these sources can hardly be overestimated. They have done an unmeasured amount of good in the improvement of the instruction of those teachers who have studied them and who have tried to follow the suggestions they give.

Within the past ten years a very creditable beginning has been made in the creation of a literature on gifted children. In the bibliography which accompanies this volume there appears to be a prominent place for carefully prepared case histories of individual children who have shown exceptional talent or capacities. The largest group of such descriptions at the present writing is the forty-one cases brought together by Terman in his *Intelligence of School Children*. The extensive search that Terman and his co-workers are now carrying on for children of this type will add, in time, hundreds of other histories. One of the most valuable contributions such work promises is the illumination that such detailed accounts, with new chapters written every few years, will throw upon the nature and the course of development of talent in children who early show exceptional general intelligence.

One need not commit oneself to any preconceived theory of the nature of general intelligence; one need not hold any over-sanguine hopes as to the possibility of predicting genius, in order to see that the gathering of scientific data on a very large number of individuals is an indispensable step in the direction of a real understanding of the problems involved in the education of gifted children.

We need far more light than we have on the effect of specific types of school and home training upon gifted children. We can get this only by successive accounts of the progress and development of individual children whose training and development are carefully watched and tested. It is to be hoped that in various parts of our country others will carry on the same type of follow-up work that Terman and his co-workers have begun.

The compiler of the accompanying case histories presents them merely as suggestive and illustrative material. It may be questioned whether we have yet learned how best to collect and report data on such children as these. At present, it seems clear that the larger the number of persons collecting and reporting and the greater the variety of form of report, the better, so that we may learn the values of each type of data.

It is difficult to make trustworthy interpretation of the data concerning an individual case. We know all too little to prophesy the outcome in any case. The great need at present is follow-up work over a period of years of a large number of cases in order that we may learn *what actually does happen.* When this has been done, we may then analyze with more intelligence and determine with more certainty, the factors which have contributed to the outcome.

Concrete illustrations of the follow-up work of which I am speaking may be seen in the several reports on Edward Roche Hardy by Harrison, Burke, and Hollingsworth, in Vols. I and V of the *Journal of Applied Psychology,* and in our own Case R. W. The latter was first reported by Root in *Psychological Monograph,*

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Vol. 29, in 1921, as his Case D 7, when the child was 7 years of age. A second report appears in Lulu M. Stedman's *The Education of Gifted Children*, 1923 (now in press), when the child was 12 years 7 months of age. Our own account records some interesting developments in the child's musical career up to the age of about 13 years and 6 months. The further reports of these and similar cases five and ten years hence will be of still greater value and interest.

The histories here given are not intended to be models. It is hoped that they will give the reader some concrete idea of the type of child who, throughout this book, is spoken of as the "gifted" child. It is hoped that many readers will be stimulated to undertake the task of gathering similar data. Most of the children whose cases are here reported have been under careful observation and special training for several years past. Their development will be followed for years to come. The findings should be enlightening. The cases have been chosen so as to present rather diverse types. Some show well-rounded general ability. Some have highly specialized talents combined with good general ability. Some come from highly cultured families where they have had every advantage that a cultured environment can contribute; others come from homes of only average culture or less. It is the diversity of the conditions out of which talent springs that urges upon us the necessity of the most patient and painstaking research into large numbers of cases of all sorts. But let our cases speak for themselves.

THE HISTORIES

I. Boy, E. B.

E. B., who will be 10 years of age in April 1924, is at the present writing a pupil in a room for gifted children. He may well be taken as a type of child with rather well balanced, all-round superiority of a very marked degree. There are hereditary factors in his case that are also of much interest. He is, with one exception, the most markedly gifted child the writer has known.

Physical data: E. B. learned to walk alone at 16 months. Talked in short sentences at 18 months. Of children's diseases has had only whooping cough and measles; no lasting after effects. His health is fairly good. Amount of physical energy average for his age.

Early educational training: Parents answered all questions as fully as possible while the interest was 'white-hot.' Began reading and telling stories to the child at two years of age. Between the ages of two and three, read to him about ten hours weekly. After four, read to child about fifteen hours weekly. This was continued until after child was seven years of age. Child learned to read about a month before his fifth birthday. Had very little and very casual help. In six months he could read the daily newspaper and apparently anything else not technical. Before five years of age he read about five hours per week. Between seven and eight, about ten hours. At nine years of age, he reads 14 hours weekly. At five he read: *Little Folks Junior Classics, National Geographic Magazine.* At six, *The Mentor* and Breasted's *Ancient History.* History is his hobby. At nine, he speaks of Breasted's *History* as his favorite book and reads it during much of his leisure time, reading in various places according to his fancy rather than continuously. He knows from his casual, undirected reading the battle formation and outlines of action of most of the decisive battles of the ancient world.

School training and school records: In 1919 (September) and 1920 he went to school intermittently (because the school was quarantined repeatedly that year); all told, he probably had less than two months' work. He gained all his fluency in reading during that time. Entered school regularly at the age of six years ten months, going immediately into the second grade. In one year from that time he had finished the B-fifth grade, although it was his mother's policy to hold him back "to avoid sacrificing the body to the mind." No home study was done during that time. At nine years of age he is doing with ease work which is usually done in the B-seventh grade, greatly enriched, and could do more difficult work if permitted to take it. The others in the group (also superior) are two or three years his senior, yet he leads the class in the quality of work. He concentrates more intensely than the other members of the class, seldom wastes time, and is always able to organize his study hour without assistance from his teachers. His mental ability

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seems to be fairly even. He is perhaps a little more interested in history than in other school subjects.

Indications of superior intelligence: E. B. gave indications of superior intelligence as early as two years of age. In fact, he could put together a dissected map of the United States before he was two. He knew the states by name before he could pronounce all of them. His mother states that he has been an inveterate drawer since the age of three, but says that she did not notice any special cleverness except in rapidity of execution and fidelity of action. The subjects of his drawing have always been contests—either games or action. As early as five years he noticed and commented on the difference in faces.

On his own initiative and with no one's knowledge, at five years and nine months of age he learned *Barbara Frietchie.* The poem had been read to him by his aunt. At the same age he was interested in, and knew all about, the causes of the World War and its events. He has always taken a profound interest in anything which tends to explain life and the universe. At six and one-half, upon being told of the analogy between the immortality of the soul and the escape of the butterfly from the chrysalis he said: "But, you see, the butterfly dies," thus registering his protest against the bad logic of the analogy.

At seven, he exclaimed with great irritation: "But mother, you *have* to believe in luck or religion, one or the other." He is interested in theosophy and seemingly fascinated with the belief of the soul returning again and again. He often expresses his impatience with Christian Science or any kind of healing by suggestion. This attitude is in spite of the fact that his mother has often shown a sympathetic attitude toward all forms of mental healing. E. B. has always thought seriously.

At six, he learned to play chess. His mother discouraged this, because she thought it too taxing, and because he felt his defeats too keenly.

A large part of his leisure time is spent in reading. Among books and poems read at, or before, six years are *Robin Hood, Alice in Wonderland, Tanglewood Tales* and *Just So Stories,* Breasted's *Ancient History, Paul Revere's Ride* and *Barbara Frietchie;* at seven, *River's End, Lays of Ancient Rome, History of Scotland, Book of Roland, Jungle Books, Wild Animals I Have Known;* at eight, *The Three Musketeers, Twenty Thousand Leagues Under the Sea, Dr. Doolittle, Ivanhoe, The Story of Reingold.* Among the books read since nine are: *Twenty Years After,* by Dumas; *Bar 20 Days,* by Mulford; and *Tom Sawyer,* by Mark Twain.

Test records: E. B.'s record in the Stanford-Binet tests was as follows:

			Examiner
C.A. 7-10	M.A. 13-4	I.Q. 170	Miss Fuller
C.A. 9-6	M.A. 17-1	I.Q. 179	Miss Stedman

In the Army Alpha test (examiner Waddle), given at the age of 9, his score was 105, indicating a mental age of 16 (Kohs-Proctor) or 16-9 (Army Psychology norms).

His score in the Stanford Achievement Test, given at the age of 9-6, shows his subject ages to be as follows:

Reading	15-9	History and Literature	14-1
Arithmetic	16-2	Language Usage	17-11
Nature and Science	12-5	Spelling	18-6

Family history: E. B. is of English, Scotch, Dutch, and Welsh descent. Father, who is deceased, finished second year of college. At various times he was an editor, army officer, and civil service clerk. His special hobbies were literature, music, writing, reform movements, and civic welfare work. He taught soldiers for one year with no remuneration and for one year with a small salary. He was also a delegate from the state to the League for Permanent Peace Conference. Notable ancestors on the father's side are: William Bradford, Governor of Plymouth Colony; William Bransford Shubrick, in charge of the Pacific squadron in the Mexican War, and James Hayward, signer of the Declaration of Independence. The grandparents for several generations were federal judges of Delaware. In general, the father's ancestors were leaders, in the public eye, and historically prominent. Other distinguished relatives on the father's side are the Duponts of Delaware and the Bayards of the same state.

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The mother is a high-school graduate and had also the advantage of one year in a seminary. She has taught, done bookkeeping, office and clerical work at various times. She has always been interested in club work and civic affairs and was state representative for "Women in Industry" in the Council for Defense during the World War. Her father was a farmer. He must have been innately superior, for with little schooling he read and studied all his life. He had an unusual memory, was very thoughtful and greatly interested in religion. Although not a college graduate, the mother has always read and studied and is decidedly superior to the average college graduate.

Plays, interests and social tendencies: Prefers playmates either older or much younger of the same sex. His superior ability has not resulted in his being dubbed "queer" or "different." His mother states that he was much beloved in the first school attended and treated as someone a bit finer than the others. This was spontaneous on the part of the children and brought out fine traits of protectiveness in the older children. He is perfectly competent to amuse himself when no playmates are present and plays imaginary games with imaginary opponents, taking imaginary trips, especially automobile trips. He plays with maps and is more interested in mental than physical games.

Characteristics: E. B. is rather more prudent and exhibits more common sense than the average child. He has extraordinary will power and is decidedly persistent in overcoming difficulties; can concentrate for long periods on abstract problems, but he is not egotistical or conceited, although desirous of excelling. He is quiet, rather retiring, and somewhat backward about meeting people.

In general intelligence he is far above the average. This statement is borne out by records of mental tests. He is an original thinker, has keen desire to know the truth, and a keen sense of humor. On the other hand, he is sympathetic, rather more sensitive to approval or disapproval than the average child; is cheerful and unselfish.

Additional notes on E. B.: In checking the vocabulary test he has never attempted to define a word that he did not know. He said: "I have seen that word in books, but I don't know its meaning." Often he would define a word and then he would say "Another usage is ...." and then he would illustrate. In explaining the fables in the Binet test he said of the Fable of the Milkmaid and her plans: "It teaches us this lesson: Do not visualize things before they happen. But that is not always true. Sometimes it is good to visualize things before they happen." He reproduced the thought of the second passage in the 18th-year book test. His attention was called to the fact that he did not say that sometimes one's happiness is not as great as we should like it and he said: "I told you that in another way. I said that sometimes we think that life was unjust to us."

II. Boy, M. D.

This is a case in which inheritance and social environment have combined to give a remarkably superior mind, interested in abstract and philosophical problems and remarkably clear and exact in thinking them out. He also shows exceptionally keen appreciation of beauty in nature.

Physical data: Learned to walk alone at sixteen months. Talked in short sentences at 15 to 16 months. Has had adenoids and tonsils removed. Has had whooping cough and chicken pox with no lasting after effects. Is remarkably underweight. Nutrition poor in spite of careful attention to diet and exercise. Yet in spite of an appearance of physical weakness, he has a greater degree of strength than one would expect. His general vitality and resistance to fatigue are good.

Early educational training: Parents have always answered his questions seriously to the best of their ability. He has been allowed to go at his own pace in activities. His parents told him stories and read to him five to six hours weekly at the age of two to five and three to four hours weekly at the age of six to seven. He learned to read when he started to school at 6½ years. He has been surrounded with tools, blocks, and crayons from infancy. A wealth of educational opportunity has surrounded him constantly and his environment has stimulated thoughtfulness.

He has been in school since 1918, with the exception of one half year when he was out of school on account of ill health. He is now doing good work in nearly all subjects. He writes unusually good poetry and excellent prose.[1] He is especially good in social science work, but has been a very poor speller, owing to dislike for the subject and to lack of interest and concentration on it. Recently, there has been a marked change in this with very good results. He has learned how to learn to spell. He read *Treasure Island* and *Tom Sawyer* at the ages of 9 to 10; *Ivanhoe, Robin Hood,* and the *Youth's Companion* at the ages of 11 to 12.

Indications of superior intelligence: M. D. had a remarkable early vocabulary. Is extremely logical in his reasoning. Has excellent perception of causal relationships. Showed dexterity of hand at the ages of 3 to 4 years. Making stage settings has always been a fascinating hobby since the age of 4. He has extraordinary appreciation of beauty in art and nature. This is shown in some of his poetry. Is anxious to excel. Decidedly above the average in general intelligence.

Stanford-Binet records:

C.A. 5-6	M.A. 8-6	I.Q. 154	(Root)
C.A. 9-10	M.A. 13-6	I.Q. 138	(Fenton)
C.A. 11-10	M.A. 16-8	I.Q. 141	(Stedman)

Stanford Achievement test: His scores in this test, given at the age of 11-8, show subject-ages as follows:

Reading	15-0	History and Literature	16-0
Arithmetic	15-4	Language usage	15-9
Nature and Science	15-3	Spelling	12-3
Composite Educational Age	14-7		

Family history: Of English, Scotch, and Welsh descent. His father holds B.S., M.A., and Ph.D. degrees. Has published several researches. Science, philosophy, and education are his greatest interests. His hobby is athletics, in which he has always had interest and ability. He has taught for 15 years in high school, normal school, and university and is now dean of a teachers' college. He began teaching at 21.

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[1] See Stedman, Lulu M. *The Education of Gifted Children.* Chap. 13, Case M. D.

The father's father is a clergyman, a college graduate, an extremely dynamic character. Engaged in "Y" work during the war. His hobby is golf in which he has won a good many trophies.

The father's mother completed one year of college. Left to marry. Has held important executive positions in various church societies, including one state presidency.

The mother's father was also a clergyman and a missionary to India. Her grandfather was a clergyman and an author of marked ability.

The mother's mother was a college graduate. She wrote a biography of her husband which is of marked literary excellence.

Characteristics: M. D. is of the "high strung" type, and rather strongly emotional. He is tall, slender, frail looking. He displays a logical, philosophical attitude toward life that would do credit to an adult. He has a marked sensitiveness to natural beauty. He takes delight in conversation and is good at it. He has a keen moral sense and decided conceptions of right and wrong. Is very sincere and has a good disposition. Takes teasing in the right spirit. Is inclined to be mischievous. Works best when there is no one about with whom he may converse.

III. Boy, E. G.

This case is illustrative of the appearance of superior abilities in families in which school advantages have been very much restricted for several generations. Such cases, not at all infrequent, indicate the importance of careful surveys of intelligence among all classes of children. Talent is likely to be discovered in most unexpected places. Such talent should be conserved and developed wherever it is found.

Physical data: E. G. has had extremely good health since birth. Had measles at age of four (very light).

Educational: Has made collections of books. Likes school. Nursery rhymes and Bed-time Stories read to child six hours weekly up to age of eight years. Learned to read before starting to school. Helped by mother. Started to school at age of six years. Went to kindergarten one month, then entered the first grade. He skipped the first half of the first grade. Has had violin and dancing lessons outside of school. Shows fair ability in music and very superior ability in dancing.

School training and school records: Has attended University Training School, University of California, Southern Branch, six years. Is now doing seventh-grade work in all subjects. Has been enrolled in the Opportunity Room for gifted children since September, 1922.

Indications of superior intelligence: E. G. is very observing, has a keen sense of reasoning, is particularly brilliant in arithmetic, has fair mechanical ingenuity, and has displayed marked ability on the professional stage.

Test records: His record in the Stanford-Binet tests was, C.A. 10; M.A. 14-1; I.Q. 143. In the Army Alpha test, given at the age of 10-10, his score was 68, indicating a mental age of 13-6 (Kohs-Proctor) or 14-4 (Army Psychology Norms).

His score in the Stanford Achievement test, given at the age of 11-3, shows his subject-ages to be as follows:

Reading	14-2	History and Literature	12-10
Arithmetic	15-2	Language Usage	15-6
Nature and Science	11-5	Spelling	14-1

Composite Educational Age 14-1

Family history: Jewish descent. Father completed two years of high school. Is now a jeweler. Interested in dramatics.

Mother completed one year of high school and attended night school. Held positions of bank teller and cashier. Thorough in all undertakings.

Father's father born in Poland. Main occupation, jeweler. Never attended school. A very capable, successful business man.

Father's mother born in Germany and of German descent. Completed grammar school. Main occupation, housewife.

Mother's father born in Poland. Never attended school. Is a merchant. Mother's mother born in Poland. Never attended school. Main occupation, housewife. Has an aunt, Nora Bayes, who is a successful comedienne on the professional stage. Average intelligence shown in both mother's and father's families.

Characteristics: Decidedly more than average physical energy. More prudent than average child, but very self-confident, strong-willed, and persevering. Strong appreciation of music. Decidedly keen humor. Very optimistic. Decidedly social. Decidedly a leader. More popular than the average child. Has a sensitive disposition. Anxious to excel. Decidedly more than average sympathy. Very generous, conscientious, truthful. Has great curiosity. Above average common sense.

Large part of leisure time in last two years has been spent in games, playing alone, working with machinery and tools.

IV. Boy, J. R. J.

The case of J. R. J. seems to be one of well-balanced general superiority. It is illustrative of a type of intense application, persistence, and effort in learning that is often, but by no means always, found in such cases.

Physical: Learned to walk alone at 14 months. Talked in short sentences at 18 months. Has had the usual children's diseases. Recovery was rapid in all cases. No lasting after effects. The report of a recent physical examination, given by a competent physician, shows that J. R. J. is a perfectly normal child in every way—unusually well and strong. The mother has always been careful to give him well balanced meals, has required him to go to bed early, in addition to lying down in a darkened room for a half hour daily just before eating his evening meal. This she felt was necessary because of the intensity with which the child goes into everything he undertakes to accomplish, using all of his energy and keeping at the problem until it is solved.

Early educational and social training: The mother has no theories of child training other than leaving the child free to develop along the lines of his particular interests, answering his questions truthfully, and talking to him as she would to another adult. She reports that it has seldom been necessary to punish him, as he responds readily to reason. It was never necessary to stimulate a desire to learn. He was always wide-awake and alert.

The parents began telling stories or reading to him when he was about two years of age and continued this until he was about six and one-half, when he began reading by himself. At eight, he went to the near-by library and chose his own books without aid from the librarian. He reads by spells, reading intensely for a long time, then laying books aside for other interests. He did not learn to read before entering school because he was so absorbed in other occupations in which he was especially interested, but he did learn to read independently in a very short time after school entrance.

J. R. J. entered the kindergarten at age of 5 years 10 months and attended four months. In 1921, at age of 6-4, he entered the B-first grade. In two years he completed the work of three grades and at the age of 8-4 is now doing the work of the fourth grade successfully. He has done no home study on school problems and has not been encouraged to forge ahead, but rather has been held back because his mother felt that he did not need pushing.

Stanford-Binet records:

C.A. 6-4	M.A. 9-2[1]	I.Q. 144
C.A. 8-6	M.A. 12-10	I.Q. 150

Stanford Achievement records: J. R. J.'s record on the Stanford Achievement test, given at the age of 8-6, indicated the following subject-ages:

Reading	12-4	History and Literature	11-11
Arithmetic	9-11	Language usage	14-4
Nature and Science	11-1	Spelling	9-8

Composite Educational Age 10-9

Indications of superior intelligence: The mother says that J. R. J. manifested superior intelligence as early as 18 months of age and seemed to develop an understanding of things in his environment very rapidly. He demonstrated unusual musical ability at just about this time and could correctly sing the entire tune of "Aloha" at about eighteen months of age. This ability has persisted. He learns songs very easily and gets the tunes perfectly. As early as three years of age he showed unusual mechanical ability, spending much of his leisure time making or building something. This interest has continued. He uses tools with facility, making good use of the coping saw. At five years of age he heard his grandmother say that she had lost her carpet beater. Without consulting anyone he made a very serviceable carpet beater out of lathes. He has made a number of toy automobiles, carving them out with an ordinary jack-knife. The later ones are well constructed and run easily. Recently he was in need of a foot rest when shining his shoes, so he constructed one. His father helped him mark out the rest, but he sawed it out unaided. He seems to be able to make anything with his hands and has a strong interest in, and a desire to work with, tools or machinery of any kind.

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[1] Results in this test would have been higher if child had been taught to read. Tests involving reading had to be omitted.

Characteristics: J. R. J. has decidedly more discernment and more foresight than most children of his age. He tends to overconfidence in self and is very self-reliant, as is evidenced by a tendency always to depend on his own judgment. He is also very ready to take responsibility. He can dress and undress his little brother and his little twin sisters as quickly and carefully as his mother does. He is exceedingly strong-willed and very persistent. When he undertakes to learn something new, he keeps at it to the exclusion of everything else until he conquers it. At the age of four years and three months he decided to learn how to tell time. In one day, by persistent work under his mother's instruction, he could tell time correctly. He carried a Baby Ben clock around with him all that day. When he first learned to dance at kindergarten, he danced nearly all of his spare time at home. When he learned to whistle, he whistled until he nearly drove all about him frantic. He enters upon every enterprise with the same intensity and perseverance.

He has an excellent appreciation of form, a strong appreciation of music, and an unusual appreciation of the beautiful in art or nature. He is always anxious to excel and is rather sensitive to disapproval.

Play interests: He is decidedly popular with other children and is always a leader. He prefers playmates older than himself and of the same sex. When quite little, he had imaginary playmates, two of whom he named 'Don' and 'Gaul.' He prefers to play out-doors, is liked by other children, and is not considered queer, although more advanced mentally than the children with whom he plays.

Family history: Of Scotch-Irish, Canadian, and Colonial descent. The father, who is living, is a graduate of Stanford University and a successful engineer. His special hobbies are hunting, boating, canoeing, and collecting weapons. He is skilled in the use of firearms, sailing, and paddling. At one time he was a Deputy U. S. Marshal. The ancestors on the father's side were nearly all self-educated and held responsible positions. They were a very sturdy people and liked out-door sports, such as hunting and fishing. They were very honest and self-reliant. The father's father was a sea captain at the age of 22, but later became a manufacturer. He held several positions of honor and trust.

Most of the ancestors on the mother's side have been farmers. It is not known how much education the grandfather on this side had, but the grandmother reached the high school. The mother is a high-school graduate. In addition to this, she attended school one and one-half years in Paris and one and one-half years in Weimar. She holds a diploma from the *Alliance Francoise.* She speaks French and German fluently and taught French for thirteen years. Since marriage, she has devoted herself to her family and home. She began teaching the boy French when he was about three years old. During the summer vacation before his entrance to the fourth grade, she formed a class consisting of the boy and two of his companions and gave them three private lessons weekly. Since the beginning of school, she has given them two lessons weekly. This is done in addition to taking care of the home and four children, two of whom are tiny babies.

V. Girl, R. W.

This case is illustrative of exceptional musical talent, combined with a marked degree of general mental ability. The heredity is quite unusual. There are many features of the child's personality which make her story one of unusual interest and suggestiveness.

Two previous reports of R. W. have already appeared. The first as Case D-7 in Dr. W. T. Root's monograph. The second in Lulu M. Stedman's *The Education of Gifted Children*. Her fascinating story of this unique child should be read in connection with our report. We aim here merely to bring up to date the account of some interesting recent developments bearing upon this child's special abilities in music.

Early educational training: Her early training was conducted by her mother at home, with the exception of three months in a Montessori school from which she derived relatively little benefit. She early learned, and could recite excellently, a large number of stories. She also acquired with ease a large repertory of songs. She learned to read at about the age of seven by a few weeks of intensive private instruction.

She entered the fifth grade at the age of eight. With the exception of something less than three months in this grade, her entire schooling has been in a room for gifted children. She has never attended more than half-day sessions, devoting the other half to her music. Of the four years since she entered this room, she has been out of school altogether for one half year. In spite of this limitation of time, she completed the work of the eighth grade before she was thirteen years of age.

Mental test records:

Stanford-Binet

C.A. 7	M.A. 9- 5	I.Q. 134.5	(Root)
C.A. 9	M.A. 12-10	I.Q. 141	(Waddle)
C.A. 10-9	M.A. 15-10	I.Q. 147	(Waddle)
C.A. 12-7	M.A. 17- 8	I.Q. 140	(Stedman)

Terman Group Test, Form B

C.A. 12-4	Score 160	M.A. 17-2

Army Alpha, Form 8

C.A. 11-7	Score 103	M.A. (15-10, Kohs-Proctor) (16- 8, Army Norm)

Stanford Achievement test: Her scores in this test, given at the age of 12-7, show the following subject-ages.

Reading	17-2	History	17-7
Arithmetic	13-5	Language usage	16-9
Nature and Science	16-9	Spelling	15-2

Composite Educational Age 15-9

At 13-5 a repetition of the same test gave subject-ages as follows:

Reading	15-2	History	16-1
Arithmetic	15-10	Language usage	17-4
Nature and Science	15-6	Spelling	15-6

Composite Educational Age 15-8

Special musical ability: R. W.'s interest in, and capacity for, music was apparent before she was two years old. It was shown first in the facility with which she learned songs. She turned to the piano at the age of five. She displayed ability in musical composition and improvisation as early as six years of age. Between this age and that of eight she made several public appearances, which included the playing on the piano of some of her own compositions. At this age she showed remarkable understanding of musical technique, of the elements of harmony and composition, and a marked degree of promise as a musical artist.

At the age of eight she turned her attention to the violin. Since that time, she has devoted herself intensively to this instrument with remarkable results. Elman, who heard her play after 18 months of training on the violin, and Kubelik, who heard her after she had spent two and one half years on her chosen instrument, both pronounced her work very promising and predicted for her a brilliant future.

At eleven years of age, after three years of training, she was presented in public recital to an enthusiastic Los Angeles audience by Mr. L. E. Behymer, local musical impresario. Subsequently, she appeared a number of times locally, in the meantime devoting herself to intensive preparation for a *début* in New York.

On October 5th, 1923, she appeared in a violin recital at Aeolian Hall, New York, where so many of the now famous artists have made their *débuts*. She was presented by S. Hurok, manager for Gluck, Zimbalist, Pavlowva, Elman, Chaliapin, and others, who sponsors only exceptional artists of real achievement. Almost without exception, the artists presented by Hurok have been of foreign birth or ancestry. It is of unusual significance, therefore, that he consented to present R. W., whose ancestry on both sides of the house to the last member is American since before the time of the Revolution. She is, in fact, a Daughter of the Revolution by right. Her future will, on this account, be watched with great interest for the bearing it has upon the question: "Can America produce musical talent of a high order?"

At the time of her *début* in New York, R. W. was just a little past thirteen years and three months of age. She played an exacting and difficult program and won very favorable comment from a large number of musical critics. The audience was an unusual one for the *début* of a child. Among those present were Godowsky, Borowsky, Seidel, Saslovsky, S. S. McClure, Prince Lazarovich of Servia, and many representatives of the music clubs, the D. A. R., and other organizations. The way in which her program was received amply bore out the earlier judgment of her violin teacher, Gregor Cherniavsky, and others who have followed her development carefully for the past five years, that in her we have a musician of rare ability and promise. On October 10, she played by invitation for a half hour over 'WEAF' (American Tel. and Tel. Co.), one of the largest and finest radio stations in the country.

She took up her school work again about November first and is preparing intensively for a repetition of her New York program in Los Angeles on December 14.

VI. Girl, J. M.[8]

It has been interesting to watch the school history during the past four years of a child with an I. Q. of 190, in a school system operated on the plan of individual instruction and individual subject promotions. The child, J. M., is an attractive, plump, healthy little girl, now doing good work in the 8th grade at the age of 10½

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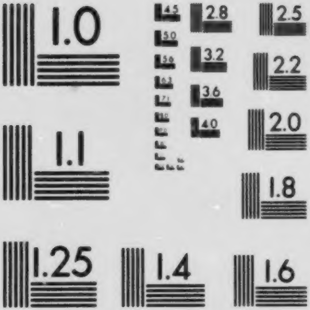
[8] Contributed by C. W. Washburne, Superintendent of Schools, Winnetka, Illinois.



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years. Had we not checked her in the seventh grade and given her a greatly enriched curriculum, she would probably now be in the high school. She has never been exploited and few people know how high her I. Q. is.

Family: J. M. comes from a good home. Her father was educated as an electrical engineer, but has for a number of years been in the investment banking business. His score on the Army Alpha test is 149, placing him well up in the 'A' class. He was born when his father was 47 and his mother 35. His father (J. M.'s paternal grandfather) was an architect who attended Edinburgh University, and was trained in the Manchester School of Science. He in turn (the paternal grandfather) was the fourth child, born when his parents were between thirty and forty; his father (J. M.'s paternal great grandfather) was an achitect and ship builder, a man who laid out factories, and came from a line of builders.

J. M.'s paternal grandmother was an English woman, educated by her aunt, who had advanced ideas on what a girl should study. She was the second child of a man who dealt with building materials.

J. M.'s mother is a woman of intelligence and refinement. Her standing on the Army Alpha test is 134 points, just short of 'A.' She is the daughter of a man who was first a teacher, then a merchant, mayor of a small southern town for 18 years, and very wealthy. J. M.'s mother was born of his second marriage when he was 66 years old and his wife 37. He himself was the son of a planter, coming from a line of southern planters.

The maternal grandmother was the daughter of a college professor, who in turn was the son of a physician and surgeon, coming from a long line of physicians. The maternal grandmother's mother came from a line of wealthy Delaware farmers.

J. M., herself, was born when her mother was 30 and her father 29. It is a rather striking fact that for three generations at least, J. M. and her progenitors were born after their parents had reached the full maturity of 30 or more years of age. It is interesting, too, that the coming together of two high-class and successful lines has brought about a child of intelligence far superior to that of her parents.

Physically, J. M. is 54½ inches tall and weighs 88½ pounds. The normal weight for her age and height is 73 pounds.

School record: She entered the Chicago schools in the first grade in September, 1919. She was immediately rejected by the first-grade teacher as knowing too much for that grade, and was placed in the second grade, where she remained until the following April, when her parents moved to Winnetka. She entered the second grade in the Winnetka schools and easily finished the second-grade work by June. Her reading, tested by the Monroe and Gray tests, was up to fifth-grade standard when she reached the third grade, and had reached sixth-grade standard by December, 1920.

It took her from September, 1920, to March, 1921, to complete the third-grade work in arithmetic and spelling, and until May 10th to reach the promotion standard in writing. Then she spurted. Between March first and May 10th she did all her fourth-grade spelling. Between March first and May 17th she did all her fourth-grade arithmetic, and by June 15th she had reached the promotion standard and was ready for the fifth-grade in both writing and language.

Entering the fifth grade in September, 1921, she slowed up a little. By the end of the year she had not reached the sixth-grade standard in writing. Her fifth-grade spelling, which she began in May, was not completed until January. Her arithmetic, begun in May, was not finished until March, 1922. She was still slower in formal language, requiring over a year to complete the fifth-grade course. She began in April, 1921, and finished in May, 1922. It is true, however, that during the first part of this time, from April to June, 1921, she was carrying a double language course, finishing the fourth-grade and beginning the fifth-grade work simultaneously. And when in May, 1922, she began the sixth-grade work, she shot through it in two weeks.

June, 1922, found her, therefore, doing advanced sixth-grade reading, through with sixth-grade spelling, almost through with sixth-grade arithmetic, and promoted to the seventh grade in language. She was then nine years old.

In spite of the fact that she was so clearly ready for seventh-grade work in the fall of 1922, we hesitated about having her come from the lower grade school to our junior high school. She was smaller and younger than any of the children in the junior high, and we felt that she was already so far advanced that still more progress was perhaps undesirable. But she had formed a warm attachment for two girls a year or so older than herself, both possessed of high I.Q.'s, and she felt that there would be nothing for her to do in the sixth grade, if we held her back. This was so obviously true that we admitted her to the junior high school with an agreement that she would remain there until she was twelve years old.

We felt that while she doubtless could do the work of the junior high school within a year, or at the most in a year and a half, since our junior high contains only the seventh and eighth grades, she ought not to go to the senior high school too young. We agreed to give her a widely enriched curriculum of electives and special courses, to keep her active and happy for three years. But it didn't work!

When she found that no effort on her part would get her through any sooner, she stopped making effort. The end of the first year (June, 1923) found her with 7th-grade cooking, 7th-grade art, and 7th-grade pottery, all incomplete. She had taken up general science toward the end of the year, and of course had not finished it, either. She had, on the other hand, completed all of the 7th-grade English and arithmetic, including some advanced work; had done exceptionally well with French. In dramatics, she first had a know-it-all attitude, owing to her mother's success in amateur theatricals, but later did very good work. In social studies she had been inclined to superficiality, trusting to her quick grasp on a single reading of the material (Rugg's *Social Science Pamphlets*) and doing little real thinking. But she was interested, and finished the course within the year.

The general feeling of the teachers, and of J. M. herself, who was charmingly frank about it, was that she had 'loafed on the job' a good deal, had been over-confident, and had 'let down' generally when the stimulus of rapid advancement was taken away. This gives some inkling as to what would have happened to her in a regular school system, where the class lock-step is the rule.

This year J. M. is taking a straight eighth-grade course with one elective, and is tieing up the loose ends left undone at the end of last year.

Social and play interests: Socially, J. M. has grown greatly in the last year. One instance will suffice to illustrate this growth.

She is a poor basketball player. But our effort in athletics (which are almost entirely intramural) is to have every child on some team. J. M., therefore, played on a team, but made them lose so many games that her team mates asked their captain to make her a substitute. This was done. J. M. sulked, and, after a week, asked her mother to get her excused from basketball. Mr. Beatty, the principal of the school, persuaded the mother that it was a good thing for J. M. to have to occupy insignificant and subordinate positions once in a while, and that the school was working hard to develop in her a sense of sportsmanship. He reminded the mother that J. M. had wanted to stop dramatics when given a subordinate part, and had cried when, in the French class, she had not been allowed to play Goldilocks. The mother agreed and J. M. remained in the basketball class.

Under the influence of her teachers, she began to get an idea of good sportsmanship and team spirit. This showed in the final game of the season. Her team was playing another for the championship of the school. One of the forwards was absent, and J. M. was playing forward. Her relative smallness, and her younger age resulted in her playing a poor game, and her team was losing. Just then the regular forward, in street clothes, appeared as a spectator. J. M., during a minute of time out, ran to her, told her to get into her 'gym' suit and take her place on the team. She sacrificed her desire to play to the welfare of the team. Her sacrifice won the game and the championship.

The growth of this spirit, the child's strong desire to move forward with the children who are now her friends, and the undesirable effect on her of our last year's experiment in holding her back regardless of her effort or ability to go forward, have resulted in our decision to let her graduate this coming June.

Her parents, however, have requested that we keep her in our junior high school for a post graduate year, because they feel that

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the influence of this school is needed by J. M. We shall, therefore, try to provide a special course for her next fall. If we find that it does not work out successfully, we will enter her in the senior high school in February, 1925. If, on the other hand, we find that we can give her the sort of education that will be helpful to her in our junior high school and that she responds rightly, we shall hold her here until June, letting her enter the senior high school at the age of twelve and one-half years.

Interpreting and summarizing our experience with J. M.: Our system of individual instruction has permitted her to make full use of her intellectual ability. Where we tried to depart from it to prevent her progress from becoming too rapid, she showed a lack of interest and in some parts of her school work she did not work up to capacity, and even became to a slight extent a discipline problem. Given, however, an incentive to first-class work and the training in social behavior which we are trying to give in our junior high school, J. M. developed successfully and well. On the whole, our system has enabled us to deal with her flexibly and as an individual. It has prevented us from prolonging our mistakes. Probably no system, or uniform plan, can be made to fit children of such exceptional mental endowments. The most we can hope for is a flexibility which will enable us to deal with such children as individuals, feeling our way as we go along.

CHAPTER XII

MISCELLANEOUS EXPERIMENTAL AND STATISTICAL STUDIES OF GIFTED CHILDREN

A. INTRODUCTION AND SUMMARY

FRANK N. FREEMAN
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University of Chicago

The special treatment of gifted children has arisen in part in a different way from the special treatment of defective or backward children. The demand for the special treatment of defective children arose from the necessities of the practical situation. Defective children failed in their work, were retarded in school, and were finally eliminated before completing the school. This forced the problem of their education upon the school administrator. The desirability or necessity of special treatment for gifted children has arisen out of the scientific study of the intellectual and physical capacity of these children and is based upon a logical process of inference, which leads to the conclusion that their nature demands special treatment. This general conclusion that exceptional ability should be given special treatment is supplemented by the inference that the progress which exceptional children make in the school does not comport with their superiority in intellectual capacity. This discrepancy is sometimes expressed in the statement that gifted children are actually retarded to a greater degree than are defective children. This retardation, of course, only comes out when we compare their potential progress with their actual progress.

The studies which are included in this section are in part such as give evidence, of the type which has been described, that special treatment is desirable. They give information concerning the physical as well as the mental capacity, and the attainments of gifted pupils in school work. From facts of this sort we may draw inferences concerning the sort of treatment which gifted children should have in school.

Such inferences as have been mentioned, however, do not satisfy our demand for scientific evidence concerning the efficacy of special treatment. In the case of defective children this evidence may be obtained by a comparison of the progress which these children make in special classes or under the other forms of special treatment with the progress which they make or fail to make when they remain in the regular grade or are given no special attention. In the case of gifted children we may obtain the same kind of evidence by securing records of the attainments of children who have been given some special form of treatment and comparing them with children of equal native capacity who have been allowed to remain in their grade and have been given no special opportunity.

The chief type of evidence of the benefit to be derived from special treatment of gifted children, in the past, has consisted in records of the rapid progress made by segregated classes in the elementary school. The records of such rapid progress do not, to be sure, give us an exact measure of the difference between the progress made in special classes and the progress which the same children would make as a consequence of the ordinary practice of special promotion. The fact that greater progress is made in special classes, at least for a time, cannot, however, be doubted. Whether gifted children make greater gain under special treatment when their attainments are measured in other ways, is a question on which we have at present practically no evidence.

Several studies which are reported in this section make a beginning on the investigation of the problem. Their method, in the main, is to compare the scores on standard tests of gifted children in segregated classes with the scores on the same tests of children of equal ability who are in regular classes. A somewhat related problem is attacked in two studies of the effect of grade skipping upon subsequent school or college attainment.

The studies which attempt to appraise in a comparative way the effect of special treatment are followed by four descriptive

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accounts of the ways in which the instruction in the high school is adapted particularly to the needs of gifted pupils.

Summaries of the Special Studies

Studies of Physical Capacity

We may summarize and comment upon the several studies in a little greater detail. The first two studies deal with the physical nature of gifted children. The first of these, by Mrs. Hollingworth and Miss Taylor, consists of the application of careful physical measurements to a group of gifted children and to another group of children of average intelligence who are like the first group in respect to race and environment. This report agrees with practically all the studies of this question, including those of Terman and of Baldwin, reported elsewhere in this volume, in indicating that intellectually gifted children are superior physically to average children and that these in turn are superior to mentally defective children. This superiority appears in the case of height, weight, weight-height index, and strength of grip. The greater superiority in right-hand grip over left-hand grip suggests the possibility that gifted children are more strongly right-handed than ordinary children, but the evidence is inadequate for more than a very tentative conclusion on this point.

Perhaps the chief significance of the facts which are presented concerning the physical superiority of gifted children is the indication that the intellectual superiority is something fundamental and not the superficial product of coaching or intellectual forcing. Regarding the question whether this fundamental superiority is to be ascribed wholly to heredity, or in some part to various environmental influences, or, if it is to be ascribed to environment, in what measure, are questions on which our present evidence does not throw light. A discussion of this question would carry us far beyond the limits of our space. The fundamental character of the traits in question strongly suggest, however, that they are, in large part at least, hereditary.

Hoke's study deals with another physical characteristic of gifted children, namely, mental balance. He finds, on the basis of examination by psycho-pathologists, that accelerated children are nervous to the number of 30.9 percent. On the face of it, this seems like a startling fact. Since no control group was used and we do not know what percentage of children who make regular progress would be listed as nervous by the same examination, however, we cannot tell what the significance of this finding is. Even in the case of physical defect, such as those of vision or of hearing, very widely different percentages may be found according to the method and standards of the examination. These findings at least indicate the need for further study.[1] The continuance of the investigation should include the examination and comparison of bright children who are accelerated, bright children who are not accelerated, and of children of ordinary intelligence. It would then be possible to determine whether there is any difference between the groups, and if so, what the cause of the difference may be.

Attainments of Gifted Children

Many studies of recent years have shown the enormous difference in the attainment in school of various children of the same age and experience. In this report we have four studies which add to the data on this subject.

Washburne's study gives an unusual opportunity to follow the progress of children of different degrees of intelligence because the children on whom he reports are permitted to progress at individual rates. He gives a preliminary report on the progress made by 90 children who are in the upper quarter in the rating by intelligence tests, in comparison with the other three quarters. The significant finding is that, while these children on the average make more rapid progress than average or dull children, "the lower half of them progress less rapidly than an equal number of children from the top of the middle group." Moreover, there is wide variation in the rate of progress of these gifted children in the various school subjects. These two types of variation are so great that Washburne holds that the child's individual capacity to do school

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[1] Cf. in this connection the conclusions reported by Terman for a much larger group which do not agree with Hoke's conclusions.—EDITOR.

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work can be given adequate opportunity only by individual instruction. It may be remarked that the lack of correspondence between progress and I.Q. might be taken care of by classifying on the basis of achievement. Whether subject variation can well be allowed for by classification under departmental instruction is a matter for discussion.

Miss Patrick's study gives in detail a statement of the high attainment of the children of a segregated class. This class was taken from the middle grades of the elementary school and was selected on the basis of intelligence. The attainments are measured in terms of the scores on educational tests. Similar material was gathered for a second class, but for lack of space was omitted. The report does not attempt to determine the extent to which the attainments of these pupils is due to their segregation in comparison to their high intelligence. In general, Miss Patrick found the subject quotients to be as high as the intelligence quotients; that is, the superiority in the pupil's attainments was equal to the superiority of their intelligence.

It has usually been found that the subject quotients are somewhat lower than the intelligence quotients in the case of superior pupils. This has been ascribed to the fact that these pupils do not have opportunity, under the ordinary conditions of the school, to measure up to their full capacity. An exception to this rule in the case of the Louisville children is found in spelling and nature study, in which the subject quotients are below the intelligence quotients. We may conjecture that the lower standing there is due either to the lack of emphasis upon these subjects in the case of this group or to a lack of correlation between achievement in these subjects and intelligence as measured by the intelligence tests.

Another suggestion that the achievement of these pupils is in part due to their segregation comes from the fact that Group I, which is not here reported, and which had one and one-half years' more segregated instruction than did Group II, had a higher reading efficiency. These inferences, however, are rather indirect and we must conclude that the extent to which superiority of these children is due to segregation cannot be determined from the data at hand.

The study by Miss Cobb and Miss Taylor is similar in significance to that of Miss Patrick. It shows that the individuals of a segregated group of bright children are equal in educational achievement as measured by an educational test to their intelligence standing. In this case, however, the educational achievement was measured by a composite educational test, the Stanford Achievement test, rather than by individual tests. The high correlation between standing in the intelligence test and the achievement test, .80, is another expression of the correspondence between intelligence and achievement.

An interpretation of this parallelism, however, is somewhat clouded by a doubt which is raised by the very high correlation. We are led to inquire whether the correlation is due wholly to a correspondence between achievement and intelligence or whether it may not be due in part, and perhaps in considerable part, to the fact that the intelligence test and the achievement test really are measures of the same thing. To put it in another way, the question is whether our tests actually differentiate between intelligence and achievement as much as we sometimes imply they do.

Benson's study compares the attainments of a class of bright pupils in reading, spelling, and arithmetic with classes of children who are in the corresponding grade in the school. The study also indicates the saving of time which these children have made by virtue of their rapid progress. The saving of time is clear. The segregated group spent, on the average, 376 days in school, and the parallel class 523 days. The average age of the segregated group is eight years, five months, and of the regular class, nine years, eight months.

Concerning the superiority of attainment in the segregated class, however, the evidence is not so clear. The numbers are too few for certain conclusions, but a suggestion may be obtained from the few cases at our disposal. Table I gives the achievement scores of two groups of pupils, one of them from the segregated, or selected, class, the other from the unselected. Pupils have been chosen so as to be as nearly as possible equal in intelligence quotient and age. It will be seen from an inspection of the averages that the attainments of the pupils of high I.Q. in the unselected class

TABLE I.—COMPARISON OF THE ATTAINMENTS OF GIFTED PUPILS IN SELECTED AND UNSELECTED CLASSES

I. Q.	Age	Reading Score	Spelling Score	Buckingham Arithmetic Score	Woody-McCall Score
		Selected Group			
131	9	37	13	27	17
131	9	45	54	45	13
131	8— 8	38	30	27	10
119	8— 1	35	37	38	16
110	8—11	38	15	30	13
105	9— 0	41	16	33	7
Average........		39	26	33	12
		Unselected Group			
131	8— 9	45	41	38	12
130	8— 9	40	28	48	11
117	7—11	43	9	39	12
112	8—10	38	5	36	7
106	9— 3	37	4	39	7
Average........		41	17	40	10

are practically equal to the attainments of the pupils of the same I.Q. and age of the selected class. We shall refer to this point in the discussion of the next section.

Comparison of the Attainments of Children in Special Classes With the Attainments of Gifted Children in Ordinary Classes

We come in this section to the heart of our question. It has already been introduced and we may proceed at once to a consideration of the facts.

The first report is that by Miss Engel. In this report she compares the school marks of groups of children in the various subjects of study. The groups compared are, respectively, those who take these studies in the special class of gifted children and pupils who are taking them in the ordinary classes, but who give evidence of superiority by the fact that they are markedly accelerated. The question which is answered for each subject by her table is this: Do the segregated children in this subject stand higher or lower than the gifted children, or accelerated children, who are not segregated into a special class? What we really have here, then, is a comparison of segregation and acceleration as measured by school marks. The school marks, be it further noted, are those which were made by these pupils in their *subsequent* school career.

If we confine our attention to those groups in which there were ten or more pupils in both the segregated and the unsegregated classes, we have the situation which is represented in Table II.

TABLE II.—COMPARISON OF SUBSEQUENT SCHOOL MARKS OF SEGREGATED AND UNSEGREGATED PUPILS

Subject	Segregated Higher	Control Higher
Mathematics	2	3
Social Science	3	3
Science	0	2
English Literature	7	1
Languages	2	4
Commercial Subjects	1	3
Art	1	0
Vocational Subjects	4	4
Health	1	2
Total	21	22

This table shows the number of instances in which the segregated children were higher and the number in which the control groups were higher. It will be seen that the segregated group is distinctly higher in English, as Miss Engel points out. The control group, on the other hand, is higher in mathematics, science, languages, commercial subjects, and 'health.' These data, on the face, at least, would seem to argue that ordinary acceleration is as favorable to the subsequent attainments of gifted children as is the formation of a segregated class such as the one conducted in Detroit.

The next two studies, by Cook and Moyer, deal with segregation in the high school. In both cases a comparison was made by giving the same test to groups of children who have been taught in segregated classes and to those who have been taught in mixed classes.

The aim of the studies was to determine whether segregation according to intelligence improves the attainments of the segregated pupils in the high school, and if so, whether it is more favorable to pupils of high ability or of low ability.

Cook's experiment is a carefully controlled study of the effect of segregation in the case of 495 high-school pupils in the subjects English, history, and geometry. All the factors were carefully controlled. The segregated and mixed classes were taught by the same teacher, at the same time of day, with the same subject matter and were given the same tests. Improvement was measured, as well as the ultimate grades and scores. The results were not uniform. In the case of geometry, English III, and English I, dull pupils attained somewhat higher scores in the segregated than in the mixed classes. In ancient history, on the other hand, the dull pupils lost, while the bright pupils profited.

The results of Moyer's experiment do not agree with Cook's. He compared the attainments in standardized tests of segregated pupils, and pupils of similar ability in mixed classes, in algebra and Latin. He found that superior and medium pupils in general seemed to benefit by segregation, but that the dull pupils did not. Furthermore, he found that if pupils were misplaced, that is, if they were in segregated classes which did not correspond with their capacity, the pupils who were in classes which were higher than their ability would warrant, profited, whereas those who were misplaced downward suffered.

It appears from these studies, as well as from that of Benson, which has already been referred to, that segregation does not have an effect on the achievements of pupils which is at all comparable with the effect of differences in intelligence on achievement. To be sure, we cannot say that segregation is of no benefit. It is quite possible that the chief value in segregation is that it makes possible a modification of the curriculum to suit the pupils of different ability, and it is to be particularly noted that such modification was not made in the cases which are here reported. The parallel groups pursued the same courses, with the exception of those in Miss Engel's study, and we do not know in that case how far the curriculum was modified. In general, the parallel groups pursued much the same subjects and in the same manner. The question remains open then, as to how far an advantageous modification of the curriculum for the various groups may be made, and to what extent such a modification will result in higher achievement.

Studies of the Careers of Accelerated Children

One of the oldest methods of giving differential treatment to bright children is to accelerate them in the school, although this acceleration is never equal in amount to that which would be warranted by their superiority in intelligence, assuming that they ought to be with children of equal mental age. We have already seen from Miss Engel's study that acceleration does not seem to make a bad showing in comparison with segregation when measured by subsequent attainments. We have here two additional studies on the effect of acceleration, that by Haney and Uhl and that by Martin. Haney and Uhl studied the achievements of accelerated students in the college, and Martin studied their achievements in the elementary grades subsequent to those in which they were given special promotion.

Haney and Uhl show that college students who enter young do work which is about equal, as measured by their college marks, to the average, and that the usual number fail. An analysis of the accelerated students who fail, however, shows that they also did poor work in the high school. Their acceleration was therefore not justified by their previous work. The conclusion which follows from these facts is that acceleration should be based only upon the demonstration of superior ability.

Martin's study shows the same thing for elementary-school pupils. In general, the pupils who maintained their standing, after skipping grades, were the ones of high I.Q., whereas those who fell off in standing were the low-grade students. The correlation between the I.Q. and success after skipping is much higher than the correlation between the mark in previous work and success after skipping.

The conclusion from all of our evidence seems to be that, while grade skipping as a practice is not as detrimental as we have sometimes been inclined to think it, and in fact, may not be detrimental at all, its result is dependent upon the ability of the pupil. Many pupils are allowed to skip grades who are not qualified to do so, in higher

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as measured by their later work. Furthermore, it would be possible by means of intelligence tests to determine beforehand with considerable accuracy which pupils will profit and which will not.

Special Studies of Gifted Children in the High School

Space will not be taken here to refer in detail to the four studies which are included under this section. It is believed that they will be found useful as descriptions of the actual procedure which has been found to be helpful in specific administrative situations. The analysis by Reavis of the cases in which the various types of treatment are appropriate is particularly to be commended.

B. STUDIES OF PHYSICAL CONDITION AND GROWTH

B 1. SIZE AND STRENGTH OF CHILDREN WHO TEST ABOVE 135 I.Q.

LETA S. HOLLINGWORTH AND GRACE A. TAYLOR
Teachers College, Columbia University
(For the Committee)[1]

The purpose of this report is to present comparative data regarding the height, weight, weight-height coefficients, and power to grip of children 9 to 11 years old, who have been selected from the public school population of New York City solely by the fact that they test above 135 I.Q. (Stanford-Binet). In the first section of our report we present the data for size, and in the second section, the data for strength. For comparison with our Jewish children, we have used, with permission, the measurements of Jewish children made by Mr. Luis A. Tirapegui,[2] which have not yet been published. We have also made comparisons of our total group with the norms obtained by Baldwin for size, and by Smedley, for strength.

No resumé of the literature of anthropometry as related to mentality will be attempted here. We believe, from our perusal of this literature, that the morphology of children standing in the highest percentile for intelligence, by individual test, has not previously been discussed in comparison with groups identical in age, sex, and race, but differing greatly as respects intelligence quotients.

I. SIZE

1. Comparison with Children Measured by Tirapegui

Briefly stated, Tirapegui made measurements, including measurements of the variables mentioned above, on Jewish children

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[1] The present report is rendered as part of the work of a joint committee in charge of special classes for bright children, in Public School 165, Manhattan. The members of this committee are Mr. Jacob Theobald, Miss Jane Monahan, of Public School 165, Manhattan; Miss Margaret V. Cobb, Dr. Grace A. Taylor, and Professor Leta S. Hollingworth, of Teachers College, Columbia University. The work is being carried out in co-operation with The Division of Educational Psychology, of The Institute of Educational Research, at Teachers College. The clerical and stenographic work in connection with the report has been facilitated by funds granted through The Institute of Educational Research, by The Carnegie Corporation.

[2] Tirapegui, Luis A., *Comparative Variability in Anthropometric Traits of Normal and Feeble-Minded.* Dissertation, completed 1923. On file in Bryson Library, Teachers College, Columbia University.

9, 10, and 11 years of age, who had first been selected by means of mental tests to compose two prescribed separate groups. The object of this research is indicated by its title. The complete measurement of every subject is recorded in the text of Tirapegui's manuscript.

In one of Tirapegui's groups were children testing below 70 I.Q. (Stanford-Binet). They were all inmates of institutions for the feeble-minded in New York State. Pathological cases (cretins, congenital syphilitics, hydrocephalics, etc.) were carefully excluded from the group, in measuring. Height was taken in stocking feet, to the nearest tenth of a centimeter. Weight was taken in ordinary indoor clothing, to the nearest tenth of a kilogram. Mental tests had been made by the psychologists resident at the institutions. Measurements of size were made during the summer months. This group is called Group C in our comparisons.

In Tirapegui's other group were children testing between 90 and 110 I.Q. (National Intelligence Test). Inasmuch as the mental measurements in this group were made by means of a group test, the data in this respect are not quite of the same order of precision for these children as for those of the two other groups. The children were drawn from the regular public school population of Philadelphia. They, also, were measured for height in stocking feet, to the nearest tenth of a centimeter. Weight was taken in ordinary indoor clothing, to the nearest tenth of a kilogram. The measurements of size were made during the winter months. This group is called Group B in our comparisons.

The children who compose our own group test over 135 I.Q. (Stanford-Binet). They are members of the two Special Opportunity Classes in Public School 165, with the study of which the committee offering this report is concerned. These classes have in them 45 children who are Jewish (both parents being Hebrew). They have passed the ninth, but have not reached the eleventh birthday. Measurements of size in this group were made in October. Weight was taken on a Toledo no-spring scale, in ordinary indoor clothing, to the nearest tenth of a pound. Height was taken with the steel stadiometer attached to this scale, to the nearest eighth of an inch. The children did not remove their shoes; but the height of a random sampling of twenty-five heels was taken, and the average amount thus obtained (.7 inch) was subtracted in making comparisons. In this way the heights which appear in the tabulations of this report for the children in Group A are heights in stocking feet.

It should also be stated that 4 pounds were subtracted from the recorded weight of each child, in all groups, in obtaining the weight-height coefficients, and in the comparisons of weight with Baldwin's norms. (The ordinary indoor clothing of children of these ages weighs about 4 pounds).

We have, therefore, 45 Jewish children, selected by mental tests from the highest percentile for intellect, who are precisely comparable in race, sex, and age with Tirapegui's Jewish children, in each of his two groups, separately. We have made the comparisons in the following manner.

TABLE I.—DISTRIBUTION OF HEIGHT IN INCHES, OF THREE GROUPS OF JEWISH CHILDREN, 9-11 YEARS OF AGE, AGE AND SEX BEING CONSTANT IN THE THREE GROUPS

Inches	GROUP A I. Q. above 135 (Median I. Q. 151)	GROUP B I. Q. 90–110 (Median I. Q. 100)	GROUP C I. Q. below 65 (Median I. Q. 43)
59	1	–	–
58	–	–	–
57	3	–	–
56	4	1	–
55	4	1	1
54	8	2	3
53	2	3	4
52	9	8	2
51	8	10	3
50	3	7	6
49	1	8	10
48	2	5	3
47	–	–	3
46	–	–	5
45	–	–	2
44	–	–	–
43	–	–	1
42	–	–	1
41	–	–	–
40	–	–	1
Total	45	45	45

Each individual of Group A was matched by sex and by age (in all but five cases precisely to the month, and in all other cases within three months, plus or minus), with an individual from Group B, and with an individual testing at or below 65 I.Q. from Group C. This procedure finally yielded three groups, each composed of 45 Jewish children, matched exactly for sex, and for age within a month; differing in a prescribed manner as respects intelligence; but varying as might be in size, since no attention whatever was paid to size in matching. Tirapegui's measurements of size were then transmuted into inches, and into pounds. The measurements thus tabulated were distributed and compared, as appears in the accompanying tables and graphs.

It has been popularly supposed that extremely bright children as a group are morphologically inferior. This notion probably has its origin in the tendency to believe that "nature is just," and works by a law of compensation. The comparisons in our tables and graphs reveal a marked morphological superiority of the very intelligent over those of average ability, and a very great superiority of the gifted over the stupid, in terms of medians, and of overlapping upon medians. The three groups form an ascending

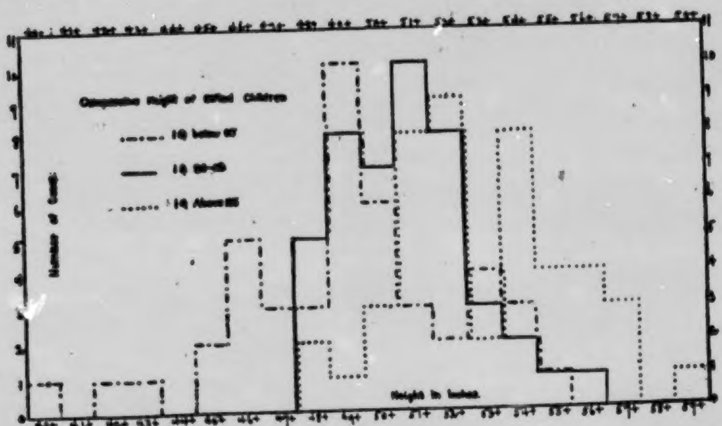

FIG. 1.—SHOWING COMPARATIVE DISTRIBUTION OF HEIGHT IN INCHES, OF THREE GROUPS OF JEWISH CHILDREN, SELECTED SOLELY BY MENTAL TESTS, AND MATCHED, GROUP FOR GROUP, BY AGE AND SEX

TABLE II.—DISTRIBUTION OF WEIGHT IN POUNDS, OF THREE GROUPS OF JEWISH CHILDREN, 9-11 YEARS OF AGE, AGE AND SEX BEING CONSTANT IN THE THREE GROUPS

Lbs.	GROUP A I. Q. above 135 (Median I. Q. 151)	GROUP B I. Q. 90–100 (Median I. Q. 100)	GROUP C I. Q. below 65 (Median I. Q. 43)
115—110	2	—	—
110—105	—	—	—
105—100	—	—	—
100— 95	2	—	—
95— 90	2	1	—
90— 85	3	1	—
85— 80	6	2	1
80— 75	5	1	2
75— 70	9	6	6
70— 65	4	10	3
65— 60	8	9	8
60— 55	3	9	13
55— 50	1	5	4
50— 45	—	1	6
45— 40	—	—	2
Total	45	45	45

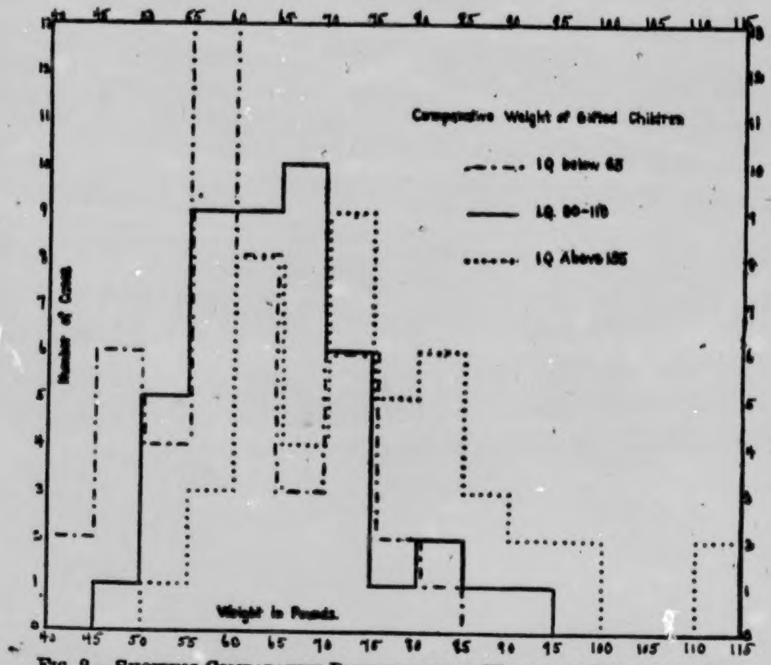

FIG. 2.—SHOWING COMPARATIVE DISTRIBUTION OF WEIGHT IN POUNDS, OF THREE GROUPS OF JEWISH CHILDREN, SELECTED SOLELY BY MENTAL TESTS, AND MATCHED, GROUP FOR GROUP, BY AGE AND SEX

TABLE III.—DISTRIBUTION OF WEIGHT-HEIGHT COEFFICIENTS OF THREE GROUPS OF JEWISH CHILDREN, 9-11 YEARS OF AGE, AGE AND SEX BEING CONSTANT IN THE THREE GROUPS

Wt.-Ht. Coeffs.	GROUP A I. Q. above 135 (Median I. Q. 151)	GROUP B I. Q. 90–110 (Median I. Q. 100)	GROUP C I. Q. below 65 (Median I. Q. 43)
210—205	1	—	—
205—200	—	—	—
200—195	—	—	—
195—190	—	—	—
190—185	—	—	—
185—180	1	—	—
180—175	—	—	—
175—170	—	—	—
170—165	3	—	—
165—160	—	1	—
160—155	1	—	—
155—150	1	—	—
150—145	2	1	—
145—140	3	3	2
140—135	3	2	—
135—130	8	4	5
130—125	5	2	5
125—120	3	5	3
120—115	4	7	4
115—110	5	6	8
110—105	4	7	3
105—100	—	3	5
100— 95	1	1	5
95— 90	—	3	2
90— 85	—	—	2
85— 80	—	—	1
Total	45	45	45

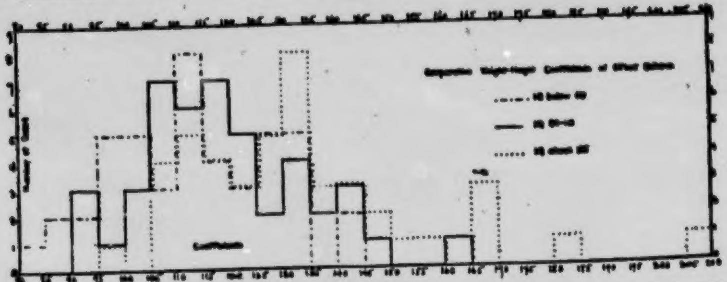

FIG. 3.—SHOWING COMPARATIVE DISTRIBUTION OF WEIGHT-HEIGHT COEFFICIENT, OF THREE GROUPS OF JEWISH CHILDREN, SELECTED SOLELY BY MENTAL TESTS, AND MATCHED, GROUP FOR GROUP, BY AGE AND SEX

TABLE IV.—SHOWING MEDIANS,* MEDIAN DEVIATIONS AND OVERLAPPING UPON MEDIANS, FOR GROUPS A, B, AND C

	Group A Med.	Group A M.D.	Group B Med.	Group B M.D.	Group C Med.	Group C M.D.	Percent Group B Reach or Exceed Median of Group A	Percent Group C Reach or Exceed Median of Group A	Percent Group C Reach or Exceed Median of Group B
I. Q.	151	9	100	8	43	10	0	0	0
Age (mos.)	117	4	117	5	116	4	53*	45*	45*
Ht. (inches) ...	52.9	1.6	51.2	1.2	49.6	2.1	20	18	28
Wt. (lbs.)	74.0	9.4	63.9	5.2	59.5	6.5	18	9	36
Ht.-Wt. Coeff..	1.31	.13	1.19	.10	1.14	.12	24	16	36

*Taking the twenty-third child in order of magnitude, as the median, (n = 45). As regards age in months, 53 percent of Group A reach or exceed the median child of Group A, since several children are just at the median age, to a month. The failures of exact correspondence in this respect of Group B and Group C are in terms of a fraction of a month. Weight includes indoor clothing. Height is in stocking feet.

series morphologically, from least gifted to most gifted. The probability that this result occurs from chance is very slight.

We believe that these clear-cut differences have been secured with the relatively small groups involved (1) because the selections are from the widest of opposite extremes, as regards intellect; (2) because the measurements, including those of intellect, were all carefully quantitative; and (3) because age, sex, and race were kept constant. It is difficult to meet all these requirements of sampling, even in a large, congested population. When, however, they have been fulfilled, the trend toward positive association between superiority of mind and superiority of body emerges. *The gifted are not small and weak, as is popularly believed. On the contrary, they tend to be large and also strong,* as appears from the comparisons of grip, which we are about to present.

A possible source of error in the comparison of Group C with the other two groups lies in the fact that the children of Group C all lived in public institutions at the time of measurement where physical nurture may possibly compare unfavorably[3] with the "home care" received by the children of Groups A and B. The comparison between Group A and Group B is, however, not subject to this possible source of error, since the children in both of these groups are living at home. The fact that the bright exceed the average, more than the average exceed the stupid, in size, suggests that the trend of comparison is valid throughout. Moreover, the stupid overlap slightly more upon the medians for weight-height coefficients of the other groups than they do for weight alone. *The stupid seem to be not so much ill-nourished as they are merely small.*

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[3] On the other hand, it is quite possible that the stupid children in the institutions have the advantage, in that they are constantly under skilled medical care, as concerns their physical well-being.

The amount of overlapping upon the median of Group A, in all three variables, shows the margin of error in inferring morphological status and mental status from each other, in the case of an individual drawn at random from the juvenile population. A few individuals from the lowest percentile of human intellect exceed the median for the highest percentile of human intellect, in given morphological traits. Nevertheless, the probability is great that an extremely intelligent child will also be tall and heavy, for his age, race, and sex.

2. Deviation from Baldwin's Norms

Baldwin's norms[4] are not derived from children homogeneous as to race. They are, however, limited to children in private and model schools in cities—the Horace Mann School, the Francis Parker School, and the Elementary School of Chicago University. Children in such schools form a selected group of superior intelligence. Pupils in the elementary grades of the Horace Mann School have a median I.Q. of about 117, indicating the extent to which they fail to represent the population at large. We have no doubt that Baldwin's norms are valid for selected children only, and fit only pupils in schools patronized by especially competent parents.

Deviations from Baldwin's norms were found and distributed for all our children above 135 I.Q., including now 56 children regardless of race and of age, matching each against Baldwin's norm for age and sex. Thus are included all of the children in Group A, and in addition six Jewish children slightly under 9 years of age, and five Gentile children of the ages included in Group A.[5]

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[4] Baldwin, B. T., *Physical Growth of Children from Birth to Maturity.* University of Iowa. 1921.

[5] The great preponderance of Jewish children in our group is doubtless due to the peculiar segregation of children in private schools, parochial schools, and public schools, which obtains in New York City. We did not have access to private and parochial schools in making our selection.

The tables and graphs which follow show how our children testing above 135 I.Q. deviate from Baldwin's norms. Our group, with a median I.Q. of 153, is clearly superior even to the groups upon which Baldwin found his norms. That this excess is not due simply to race, that is, to the preponderance of Jewish among our children, is proved by the fact that the Jewish children of Group B above, do not reach Baldwin's norms (being public school children of ordinary intelligence).

TABLE V.—DISTRIBUTION OF DEVIATIONS FROM BALDWIN'S NORMS, FOR HEIGHT IN INCHES, OF CHILDREN TESTING ABOVE 135 I.Q. (STANFORD-BINET)

Amount of Deviation in Inches	Children Above 135 I.Q. Frequency
+5.5— 4.5	3
4.5— 3.5	2
3.5— 2.5	9
2.5— 1.5	6
1.5— 0.5	10
0.5—−0.5	5
−0.5— 1.5	7
1.5— 2.5	6
2.5— 3.5	4
3.5— 4.5	3
4.5— 5.5	1
Total	56

A comparison of the distributions shows that the children of our group who test above 150 I.Q. (n = 32) do not differ reliably in size from those who measure between 135 and 150 I.Q. (n = 24).

II. STRENGTH

1. Comparison with Children Measured by Tirapegui

The grip of children in the Special Opportunity Classes at Public School 165 was taken for the right hand and for the left hand with Smedley's dynamometer, to the nearest half kilogram, according to the procedure laid down by Pyle.[6] The Jewish children studied by Tirapegui had been measured in precisely the same manner. Our own measurements of grip to date yield 42

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[6] Pyle, W. H., *The Examination of School Children*, Macmillan, 1913.

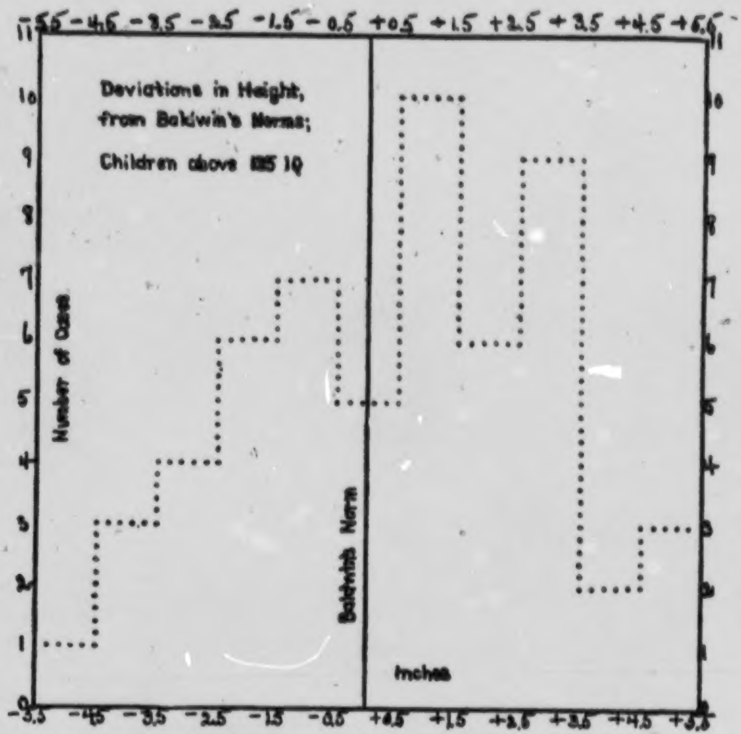

FIG. 4.—SHOWING DEVIATIONS FROM BALDWIN'S NORMS, FOR HEIGHT IN INCHES, OF CHILDREN TESTING ABOVE 135 I.Q. (STANFORD-BINET)

TABLE VI.—DISTRIBUTION OF DEVIATIONS FROM BALDWIN'S NORMS, FOR WEIGHT IN POUNDS, OF CHILDREN TESTING ABOVE 135 I.Q. (STANFORD-BINET)

Amount of Deviation in Pounds	Children Above 135 I. Q. Frequency
+55.5— 45.5	1
45.5— 35.5	—
35.5— 25.5	4
25.5— 15.5	5
15.5— 5.5	18
5.5— -5.5	18
-5.5— 15.5	10
Total	56

Height in Inches,
d-Binet)

n's Norms, for
135 I.Q.

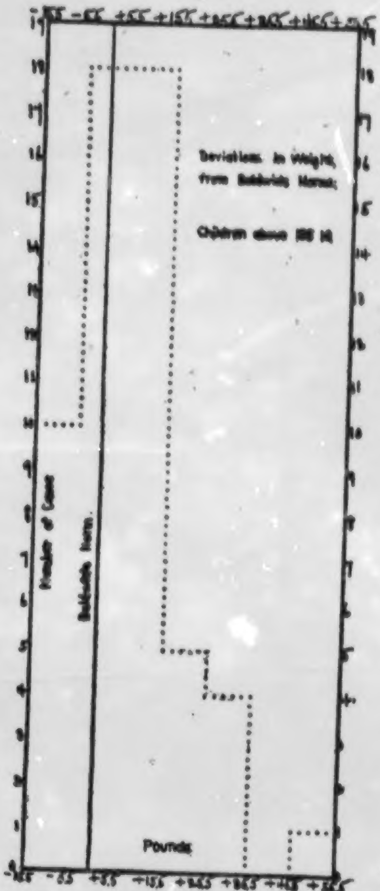

FIG. 5.—SHOWING DEVIATIONS FROM BALDWIN'S NORMS, FOR WEIGHT IN POUNDS, OF CHILDREN TESTING ABOVE 135 I.Q. (STANFORD-BINET)

Jewish children,[7] 9 but not 11 years of age, testing above 135 I.Q. (Stanford-Binet), who can be compared with children from Tirapegui's two groups, respectively. Comparison was made in precisely the same manner as in the case of measurements of size to

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[7] A few children were either absent or had sore fingers, when grip was taken.

TABLE VII.—DISTRIBUTION OF DEVIATIONS FROM BALDWIN'S NORMS, FOR WEIGHT-HEIGHT COEFFICIENTS, OF CHILDREN TESTING ABOVE 135 I.Q. (STANFORD-BINET)

Amount of Deviation	Children Above 135 I. Q. Frequency
+.95— .85	1
.85— .75	—
.75— .65	—
.65— .55	—
.55— .45	3
.45— .35	3
.35— .25	2
.25— .15	11
.15— .05	12
.05—-.05	8
-.05— .15	11
.15— .25	5
Total	56

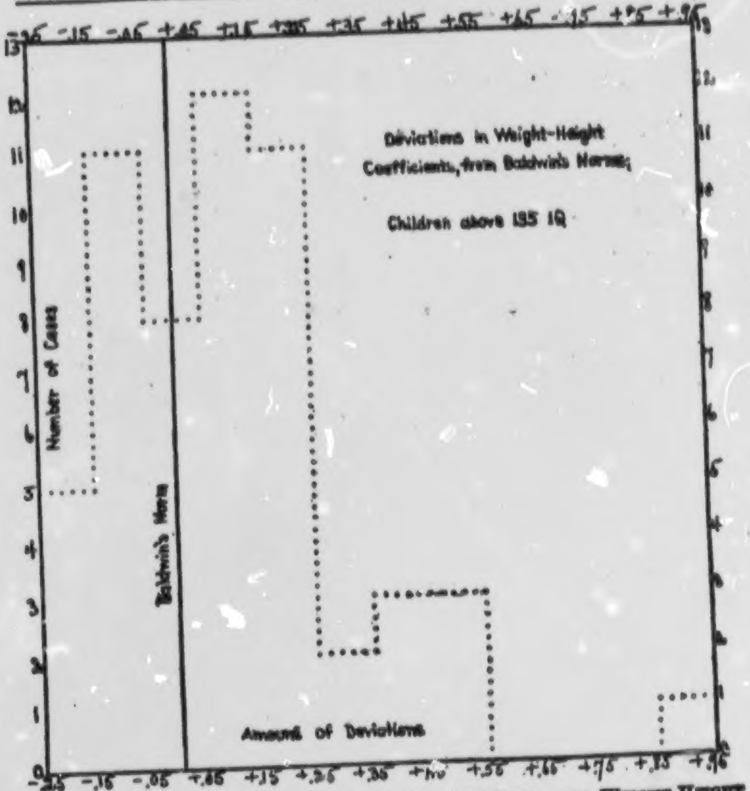

FIG. 6.—SHOWING DEVIATIONS FROM BALDWIN'S NORMS, FOR WEIGHT-HEIGHT COEFFICIENT, OF CHILDREN TESTING ABOVE 135 I.Q. (STANFORD-BINET)

TABLE VIII.—DISTRIBUTION OF STRENGTH OF GRIP, IN KILOGRAMS, OF THREE GROUPS OF JEWISH CHILDREN, 9-11 YEARS OF AGE, AGE AND SEX BEING CONSTANT IN THE THREE GROUPS

Kilos.	Group A I. Q. above 135		Group B I. Q. 90–110		Group C I. Q. below 65	
	R	L	R	L	R	L
24—23	1	—	—	—	—	—
23—22	1	—	—	—	—	—
22—21	—	—	1	—	—	—
21—20	—	1	1	1	—	—
20—19	3	1	—	—	—	—
19—18	2	3	2	1	1	—
18—17	3	1	—	1	2	—
17—16	5	—	3	2	1	—
16—15	8	5	2	7	2	5
15—14	4	5	15	7	4	5
14—13	4	9	14	11	12	1
13—12	6	6	2	6	1	12
12—11	3	4	—	4	—	6
11—10	1	4	2	1	8	4
10— 9	—	2	—	—	9	1
9— 8	1	—	—	1	2	3
8— 7	—	—	—	—	—	5
7— 6	—	1	—	—	—	—
Total	42	42	42	42	42	42

obtain three groups matched exactly for age, sex, and race, but differing as prescribed in I.Q. The tables and graphs which follow show the results of such comparison.

It has already been shown repeatedly that the stupid have a weaker grip than have unselected children. Also, it has been shown that pupils who do good work in school have a stronger grip than those who do poorly in school work. We find here that children who *test* in the highest one percent for intelligence have a stronger grip than do children selected as average intellectually; and a much stronger grip than stupid children have. These statements apply especially to grip in the right hand.

2. Deviation from Smedley's Norms

Furthermore, we have compared our group of the gifted with Smedley's norms, matching each child against Smedley's norms, for age and sex.

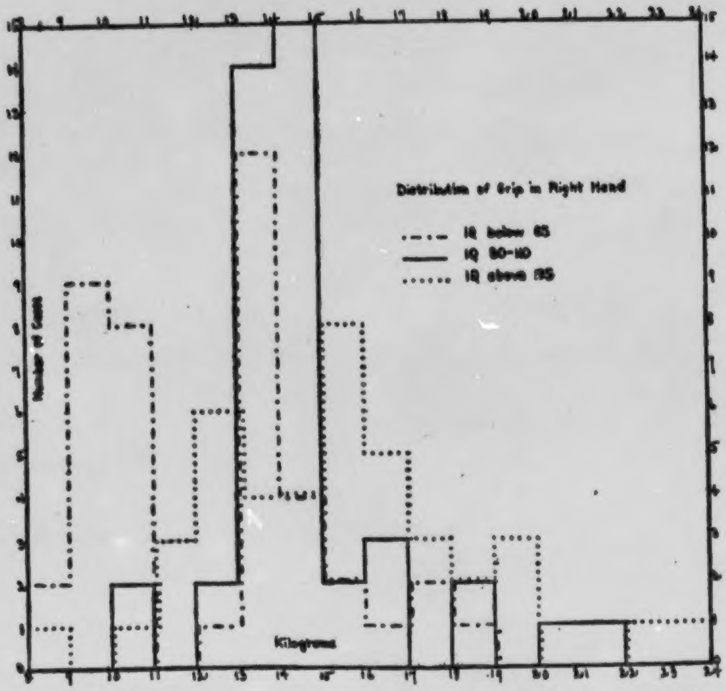

FIG. 7.—SHOWING COMPARATIVE DISTRIBUTION OF RIGHT-HAND GRIP IN KILOGRAMS, OF THREE GROUPS OF JEWISH CHILDREN, SELECTED SOLELY BY MENTAL TESTS, AND MATCHED GROUP FOR GROUP, BY SEX AND AGE

Table IX and Fig. 9 give the results of this comparison, showing again the stronger grip of the intellectually able children, as a group.

3. Ambidexterity and Left-Handedness

In order to observe the comparative number among the bright, who are left-handed, or ambidextrous, we computed the ratio of right to left $\left(\frac{\text{rt}}{\text{left}}\right)$ for each child, in groups A, B, and C, respectively.

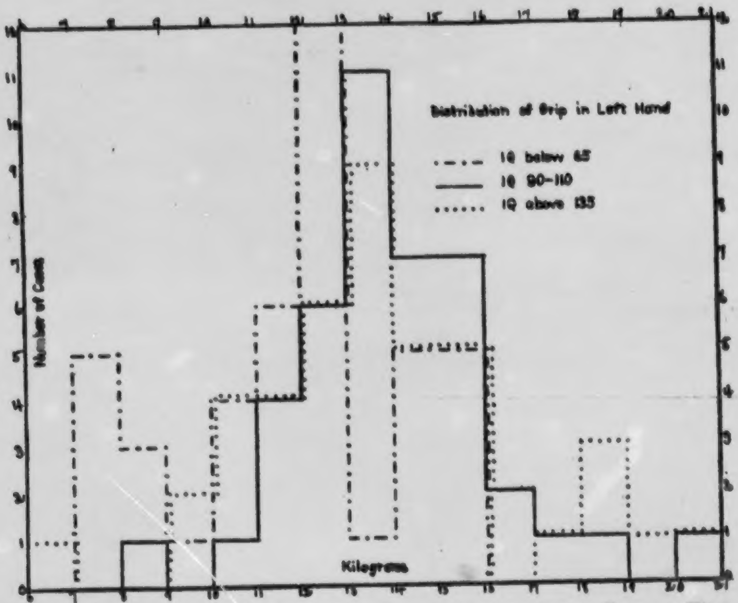

FIG. 8.—SHOWING COMPARATIVE DISTRIBUTION OF LEFT-HAND GRIP IN KILOGRAMS, OF THREE GROUPS OF JEWISH CHILDREN, SELECTED SOLELY BY MENTAL TESTS, AND MATCHED, GROUP FOR GROUP, BY SEX AND AGE

In Group A there appeared seven children with equal grip in both hands, and two with stronger grip in the left hand. In Group B there were four children with equal grip in both hands, and six with stronger grip in the left hand. In Group C the numbers were the same as in Group B.

Adequate criteria of handedness have not been agreed upon. Grip with the dynamometer as a criterion has been justly criticised by competent investigators. It is certain that additional tests of handedness must be applied in order to determine the percentage of ambidexterity and of left-handedness in our group.

III. CONCLUSIONS

1. Children testing in the highest one percent of human intellect are very superior in size, as a group.

2. However, intellect cannot be reliably inferred from physical size, nor physical size from intellect, in an individual chosen at random, as there is overlapping upon medians in size between groups of children chosen from opposite extremes for intellect.

3. Children testing in the highest one percent of human intellect have superior strength of grip, as a group.

TABLE IX.—DISTRIBUTION OF DEVIATIONS FROM SMEDLEY'S NORMS, FOR GRIP, OF CHILDREN TESTING ABOVE 135 I.Q. (STANFORD-BINET)

Amount of Deviation in Kilos.	Children above 135 I. Q. Frequency R	Children above 135 I. Q. Frequency L
+10.5— 9.5	1	—
9.5— 8.5	1	—
8.5— 7.5	—	—
7.5— 6.5	—	1
6.5— 5.5	—	—
5.5— 4.5	2	2
4.5— 3.5	2	2
3.5— 2.5	4	1
2.5— 1.5	5	6
1.5— 0.5	9	5
0.5——0.5	5	8
—0.5— 1.5	6	6
1.5— 2.5	4	6
2.5— 3.5	—	2
3.5— 4.5	1	—
4.5— 5.5	2	2
5.5— 6.5	—	1
Total	42	42

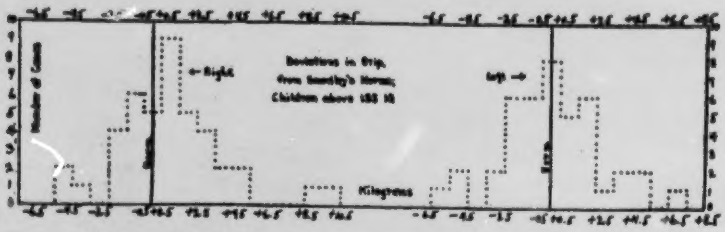

FIG. 9.—SHOWING DEVIATIONS FROM SMEDLEY'S NORMS, FOR GRIP IN KILOGRAMS, OF CHILDREN, TESTING ABOVE 135 I.Q. (STANFORD-BINET)

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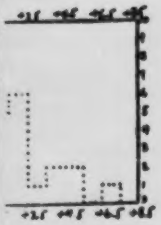

GRIP IN KILO-
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4. Intellect cannot, however, be reliably inferred from grip, nor grip from intellect, in an individual chosen at random, as there is overlapping upon medians in strength between groups of children chosen from opposite extremes for intellect.

5. That the demonstrated relationship between superiority of mind and superiority of body is causal, cannot be inferred. There is nothing in our data to suggest that the superior children are bright *because* they are tall and heavy; nor that they are tall and heavy *because* they are bright. We can only say that mentally gifted children, as a group, are large and strong at the ages studied, insofar as we have measured them.

Among the numerous comments which have been made upon the possible or probable correlation between mind and body, certain remarks by Francis Galton,[8] arising from his general observation of men, are interesting in connection with our findings: "There is a prevalent belief that men of genius are unhealthy, puny beings —all brain and no muscle—weak-sighted, and generally of poor constitutions. [but in fact] A collection of living magnates in various branches of intellectual achievement is always a feast to my eye; being, as they are, such massive, vigorous, capable-looking animals."

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[8] Galton, F. *Hereditary Genius.* Macmillan, London. 1914 ed.

B 2. THE HEALTH OF THE INTELLECTUALLY SUPERIOR PUPIL

K. J. Hoke

Dean of the College of William and Mary, Williamsburg, Virginia

The practice of accelerating pupils of more than average ability, through skipping, special classes, and individual instruction, has possibly gone far enough to consider it a more or less established policy in our public schools. The frequent criticism by parents and teachers of this fairly well established practice justifies closer study than has usually been given it. If the present study results in calling attention to the need for careful research in various fields connected with this practice, it will have served its purpose.

In the public schools of Richmond, Virginia, the policy has been practiced for some years of permitting pupils to advance from one grade to another whenever, in the opinion of the teacher and principal, they were prepared. In February, 1917, one special class for intellectually superior pupils was inaugurated. This number was later increased to four. In June, 1922, the last of these classes was temporarily discontinued. In these classes at this time were approximately 75 pupils whose records were sufficiently complete to serve as a basis for study. Since that time they have been in regular classes.

It is important to bear in mind that these pupils were selected for the special classes, in the main, on the basis of their previous record and the teacher's judgment.[1] The mental ages were obtained in about half of the cases by mental tests. The only physical examination was the routine examination of all pupils. The medical record cards of these 75 pupils at the time they were transferred to the special classes show no record of nervousness.

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[1] It seems proper to call attention to the fact that experience has amply demonstrated that the judgment of teachers is far less accurate than the evidence of intelligence and educational tests in selecting pupils for a segregated class of gifted pupils. In several school systems in which both methods have been tried the performance of pupils in such classes has very definitely improved when the change was made to selection on the basis of objective tests. It seems proper also to call attention to the fact that many of these pupils remained in the special accelerating classes for considerably longer periods than has been commonly recommended. The reader may compare in this connection the statistical results concerning nervousness and other non-intellectual traits reported elsewhere in this volume by Miss Davis and by Dr. Terman in Chs. VII and IX. Dean Hoke regards his conclusions as merely tentative on account of this rougher method of selection and the limited number examined.—Editor.

That the progress of these pupils represents a definite policy of the school system with reference to acceleration is shown from Table I, which shows their progress from the time they entered the first grade until they were transferred from the special classes to the regular classes.

This table is read as follows: Eight pupils who completed the VIIB grade made only normal progress from IA to IIB; in the IIIA and IIIB grades one term, or four and one-half months, in each was saved, etc.; seven pupils who completed the VIIA grade saved two terms in the IA, two and one-half terms in the IB, and one and one-half terms in the IIA, etc.

If a pupil progressed normally, spending one term in each grade, it would take him fourteen terms to pass through the seven grades. If he progressed more rapidly than normal time, he would complete the work of the seven grades in less than fourteen terms.

From Table I it will be seen that many pupils were accelerated from the time they entered the IA grade and, further, that the largest amount of acceleration began with the 3A grade, when some of them were placed in special classes. Eight hundred twenty terms would have been required if these seventy-five pupils had progressed normally to the point when they were excused from the special class. But the group spent only 662⅘ terms in accomplishing the required work. This saving amounted to 19.2 percent of normal time. It will also be noted that each pupil in the group saved, on the average, two and one-tenth terms.

The record in Table I gives the acceleration of the group during the time the pupils were in the regular classes as well as in the special class. The acceleration of the group during the time spent in the special classes is given in Table II. It is read as follows: Eight pupils entered the special class in the VB grade and remained through the VIIB grade. In the VB grade they spent the equivalent of four and one-half terms; in the VIA, four and one-half terms, etc.; nineteen pupils entered the special class in the

TABLE I. — THE SCHOOL PROGRESS OF SEVENTY-FIVE WHITE PUPILS IN RICHMOND, VIRGINIA, FROM THE TIME THEY ENTERED THE FIRST GRADE UNTIL THEY WERE TRANSFERRED FROM THE SPECIAL CLASSES

Grade	No. of Pupils	NUMBER OF TERMS SPENT IN DIFFERENT GRADES														Total No. Terms		Average No. Terms Accelerated
		IA	IB	IIA	IIB	IIIA	IIIB	IVA	IVB	VA	VB	VIA	VIB	VIIA	VIIB	Actual	Normal	
VIIB	8	8	8	8	8	7.5	7.5	8	7	8	4.5	4.5	4	4	8	95	112	2.1
VIIA	7	5	4.5	5.5	5	5.5	6.5	6.5	6	6	6	7	3.5	3.5		70.5	91	2.6
VIB	15	14.5	10.5	11.5	13	13.5	14.5	12.8	7.8	7.8	10.5	13	15			145.5	180	2.3
VIA	13	13	13	13	12.5	12	12.5	8.5	8.5	12.5	6.5	7				119	143	1.8
VB	16	15.5	15.5	16	16	15.2	10.8	9.3	11.3	7.8	7.8					125.5	160	2.0
VA	8	8	8	8	8	7	4	3.3	5.5	5.1						56.8	72	1.9
IVB	6	6	6	6	7	3.5	3	3	4							38.5	48	1.6
IVA	2	2	2	2	2	1.5	1	1.5								12	14	1.0
Actual	75	72	68	70	71.5	65.8	59.8	53.3	50.1	47.3	35.3	31.5	22.5	7.5	8	662.8	....	2.1
Normal	75	75	75	75	75	75	75	75	73	67	59	43	30	15	8	....	820	....
Percent Normal Time Saved	......	4.0	9.3	6.6	5.3	12.2	20.2	28.8	31.2	29.3	40.1	26.7	25	50	0	Total Percent of Normal	19.2	

TABLE II.—THE SCHOOL PROGRESS OF SEVENTY-FIVE WHITE PUPILS IN RICHMOND, VIRGINIA, DURING THE TIME THEY WERE IN SPECIAL CLASSES

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Grade	No. Pupils	NUMBER OF TERMS SPENT IN DIFFERENT GRADES										Total Number Terms		Average Number Terms Accelerated
		IIIA	IIIB	IVA	IVB	VA	VB	VIA	VIB	VIIA	VIIB	Actual	Normal	
VIIB	8						4.5	4.5	4	4	8	25	40	1.8
VIIA	19	15.5	18	15.3	12.8	11.8	15	19	14.5	3.5	......	125.5	171	2.4
VIB	4				2	2	2	2	4			12	20	2.
VIA	23		19	15	18.5	19	10	6				87.5	138	1.7
VB	0											0	0	0
VA	7		5	3	3	3.5	3.5					18	35	2.4
IVB	5	4.8	2.8	2.8	3.8	1.8	.3					16	36	3.25
IVA	6	4.5	4	4.3	2.6	.6						16.1	40	2.7
												300.6	...	2.4
Actual	75	34.8	48.8	40.5	42.8	38.8	35.3	31.5	22.5	7.5	8	....	480	....
Normal	75	33	63	63	67	67	67	54	31	27	8			
Percent Normal Time Saved	..	24.	23.	35.	36.	42.	47.	41.	27.	72.	....	Total Percent of Normal 37.4		

IIIA grade and remained through the VIIA grade. In the IIIA grade they spent the equivalent of fifteen and one-half terms; in the IIIB grade, eighteen terms, etc.

In order to determine the presence of nervousness in these seventy-five pupils at the present time, they were given a thorough examination by Dr. N. Thomas Ennett, Chief of the Medical Department. The results of this examination are as follows:

Total number examined	72
Total number not examined (absent)	3
Total number found nervous	28 (38.9%)
Total number found not nervous	44 (61.1%)

Although the routine physical examination [illegible]se pupils at the time they entered the special classes did not [illegible] any nervousness, it is quite possible that, if an exhaustive physical examination had been given this special group at that time, some nervousness would have been detected. According to the report of the Chief of the Medical Department, who made the last examination, approximately five of the twenty-eight nervous cases, or seven percent of the total number examined, would have been detected by the routine examination, if it alone had been made at this time. This would leave twenty-three of the nervous cases, or thirty-one percent of the total, undetected by the routine examination. It should be stated further, that the routine examination is intended primarily to detect infectious diseases and such pronounced physical defects as adenoids, enlarged tonsils, and defective eyesight.

It would seem, therefore, that the amount of nervousness in this group exceeds that of the regular school population, though the lack of data[2] makes impossible a careful comparison of the amount of nervousness in the two groups.

A survey of the literature dealing with this problem furnishes little information with which to make comparisons. A report from Dr. Clinton P. McCord, Health Director of Public Schools, Albany, New York, shows that the average general nervousness in first- and sixth-grade pupils, in regular classes for six consecutive yearly examinations, was thirteen percent. In a recent communication

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[2] Time and facilities were not available to make the exhaustive examinations of large numbers of pupils in regular classes in order to determine the amount of nervousness among pupils in general.

Dr. McCord writes as follows concerning the need for more careful examination of those pupils under consideration for acceleration in some form or another:

> "I am quite certain that a school system, placing certain children in special classes for so-called accelerated pupils and selecting these pupils on the basis of their intelligence quotient and their scholastic standing only, is doing grave injury to a very large percentage of the group. The only rational way to select such pupils is upon the basis of complete physical, neurological, psychological and psychiatric study, including personality study; this study should include the determinations of special abilities and disabilities as far as our psychiatric equipment permits."

In order to secure the judgment of the teachers who are now teaching this group of pupils, the following questionnaire was sent. Replies were secured concerning seventy-one of the seventy-five pupils. The questions and a summary of the results are shown here.

	Yes Percent	No Percent	No Information Percent	Reply Conditioned Percent
I. Have you observed any symptoms of nervousness? (Extreme 2 pupils; slight 17 pupils)	26.7	73.3	0.0	0.0
II. Has pupil, so far as you know, lost time from school on account of sickness? If so, how many days? (Average per pupil, 6 days since entering special classes)	22.5	57.8	19.7	0.0
III. Has any sickness been due to overwork or other condition in school?	1.4	66.1	32.4	0.0
IV. Is the pupil as mature mentally as the other pupils in his class?	78.8	16.8	0.0	4.4
V. Does the physical development of the pupil interfere with wholesome competition among members of the same class?	1.4	63.4	35.2	0.0
VI. So far as you know, has the pupil failed in any of his work since leaving the accelerated class as a result of the policy of acceleration?	29.5	59.1	11.4	0.0
VII. In so far as you have observed, is the pupil deficient in his training?	28.1	67.6	4.3	0.0
From skipping parts of curriculum . . . . 9 pupils				
From lack of application . . . 2 pupils				
From slowness . . . . 2 pupils				
VIII. In your judgment has this pupil been benefited by acceleration?	38.	32.5	0.0	26.8

	No.	Percent
IX. How does the pupil rank in scholarship among the pupils of his class:		
First or highest quarter	19	26.7
Second quarter	27	38
Third quarter	15	21.1
Fourth or lowest quarter	6	8.4
No information	4	5.6
X. In your judgment which is the better plan for the care of the more capable pupil:		
a. The accomplishment of the same amount of work in each grade, but in less time than the average pupil and, therefore, more rapid progress grade by grade	29	40.8
b. The same amount of time in each grade as the average pupil, but more work and additional subject matter to be covered	35	49.2
Undecided	7	10.

An analysis of these replies shows the following facts:

1. In the judgment of the teachers 26.7 percent of the pupils show some symptoms of nervousness. Of this number two pupils were rated as "extremely nervous" and seventeen as "slightly nervous."

2. Absence from school on account of sickness or over-work could not be given as a cause for any failures in this group after leaving the special classes.

3. Sixteen and eight-tenths percent of the pupils are rated more immature than the other pupils in their group.

4. The physical development of these pupils does not interfere with wholesome competition among members of the same group.

5. Twenty-nine and five-tenths percent of the group have had failures which are attributed by the teachers to the policy of acceleration.

6. The fact that 21.1 percent and 8.4 percent of the group are rated in the third and fourth quarters, respectively, would indicate wide disagreement among the teachers concerning the ability of these pupils.

7. In the judgment of the teachers a fairly large percentage, 28.1 percent, of the pupils are deficient, owing to previous training.

8. Opinion is practically equally divided between the two plans of treatment, acceleration or enrichment.

An analysis of the suggestions made by the teachers reporting on these pupils shows a distinct divergence of opinion between the teachers of the elementary schools, with whom the pupils have been accelerated, and the teachers in the junior and senior high schools, who have received these pupils after leaving the special classes. The results of the questionnaire also show clearly considerable disagreement among the teachers concerning the policy of acceleration.

The task of securing reliable data dealing with the problems raised in this study calls for the assistance and co-operation of many workers. Without the support of Mr. A. H. Hill, Superintendent of Schools, and Dr. N. Thomas Ennett, Chief of the Medical Department of the Richmond Public Schools, this study would have been impossible. I am grateful to them for their assistance.

The limited data do not warrant any definite and final conclusions concerning the extent to which special classes for acceleration cause children to become nervous. At best, the data constitute only a preliminary report. Its chief purpose is to indicate, if possible, the necessity for careful inquiry along certain lines which should result in making a more stable and efficient policy dealing with acceleration.

It is possibly not unfair to say, however, that the information submitted points to the following conclusions:

CONCLUSIONS

1. The amount of nervousness in this group after they had passed through the accelerated classes is apparently high.

2. This physical condition argues strongly for a thorough physical examination of all pupils when they enter the special classes and at regular intervals thereafter.

3. The limited amount of information dealing with the physical condition of children who are in accelerated, and also in regular, classes calls for exhaustive studies as a basis for more intelligent procedure.

4. The indefiniteness of information relative to the progress of pupils throughout the public schools after they have left the special classes makes reliable conclusions covering the policy of

acceleration impossible. In order to determine the effectiveness of our present policy of acceleration it will be necessary to know the scholarship standing, the rate of progress, and the physical conditions of such pupils until they complete the high school and possibly in some cases after they have entered institutions of higher learning.

5. The wide divergence of opinion among teachers and parents calls for more accurate information concerning the success of the policy of acceleration before this policy can receive the wholehearted support of parents and the teaching profession.

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C. THE ATTAINMENTS OF GIFTED CHILDREN

C1. THE ATTAINMENTS OF GIFTED CHILDREN UNDER INDIVIDUAL INSTRUCTION

Carleton W. Washburne
Superintendent of Public Schools, Winnetka, Illinois

A system of individual instruction and promotions in the Winnetka public schools during the past four years has made it possible for us to watch the natural rate of progress of gifted children by subjects and by grades. It has made clear the fact that gifted children, as a whole, cover a given unit of school work in less time than average children. It has shown, also, that gifted children differ widely among themselves, both in general rate of progress and in the subjects in which their progress is greatest.

To understand our findings, it will be necessary first to understand the general principles of the Winnetka technique of individual instruction and subject promotions.

The curriculum is divided into two types of work: one type we call the common essentials; the other type, socialized and self-expressive activities.

Common essentials are defined as those knowledges and skills which are used by practically everyone who possesses them. They are, therefore, objectively determinable by statistical investigation of social needs and usages. By definition, they are practically universal. Consequently, every child should be trained in them. They include: (1) a certain amount of speed and accuracy in the fundamental processes of arithmetic; (2) the ability to read with a given amount of speed and comprehension; (3) the ability to write legibly and rapidly; (4) habitual use of the most common elements of punctuation and capitalization; (5) ability to spell the most commonly used words; and (6) knowledge of those facts in history and geography to which frequent allusion is made.

Socialized and self-expressive activities, on the other hand, have as their objective skills and habits which are as yet unmeasurable. Through them we strive to give children: (1) training in cooperation; (2) training in consistent work toward a desired end;

(3) the habit of initiative in creative endeavor; and (4) the sense of the interdependence of man upon man.

While there are distinct differences between the common essentials and the socialized and self-expressive activities, they naturally are not kept in water-tight compartments. The common essentials are always being applied in socialized activities, which in turn have a reciprocal effect upon them. It is, however, the common essentials which we individualize in the Winnetka schools. It is the common essentials which can be measured accurately, and which must be mastered by each student of anything like normal mentality, regardless of the degree of his intellectual endowment.

Through these common essentials each child moves at his own natural pace. The children have before them at all times a list of the exact objectives to be reached—what standards of speed and accuracy, what factual knowledge, and what skill in each subject. No child moves from one topic to the next in any of the common essentials until he has mastered the topic on which he is working. The slow child takes as long as he needs. The quick child goes forward as rapidly as he is able. This is made possible through self-instructive devices and self-corrective practice materials. The progress of the children is tested by carefully prepared diagnostic tests, each one covering completely the knowledge or skills which it is supposed to test.

When a child has worked through a certain amount of practice material and given himself a practice test, he asks the teacher for a real test. The real test is corrected by the teacher, who either 'O.K.'s' the child on that unit of work or refers him back for specific practice on the points he has missed.

This system obviates the necessity for recitations, in the usual sense of the word. Children are tested individually by the diagnostic tests and need not be tested through the class recitation. This leaves from one-third to one-half of their school day clear for the socialized and self-expressive activities.

Self-expressive activities include much of the art work, all of the shop work, some of the music, and all except the formal side of written composition. Since we are striving in our self-expressive activities to bring out children's individual and special abilities,

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there is no attempt to grade them by a common standard. A thing is made for the sake of making it, not for the sake of a mark or promotion.

The same is true of our socialized activities. When we have, as we frequently do, a vigorous class discussion of any problem, whether in arithmetic or social studies or school government, that discussion is for the sake of solving the problem and is not a means of discovering whether the child has studied his lesson. When a child makes a report on an investigation, or on a book, it is with the purpose of giving the rest of the class the information which they do not already possess, not for the purpose of showing the teacher that this information has been gained. Socialized activities include also field trips and group projects. These group projects are an end in themselves, not a means to the learning of facts or skills which can be better taught through individual practice on specific needs.

Self-expressive and socialized activities have nothing to do with promotions or advancement. This is determined solely by the individual work.

When children under this system have completed all or most of their sixth-grade work, they enter the junior high school (7th and 8th grades only). Here individual instruction continues and a wide variety of electives and special courses is offered. The children remain until in both preparation and general maturity they are considered by the faculty as ready for the senior high school. All surplus time can be readily and profitably filled with work in the shops, the laboratory, the art and pottery rooms, or the special subject classes.

It is under such a system of individual and group work that we have been able to watch the progress of the gifted children in the Winnetka schools.

We are this year making, under a subvention from the Commonwealth Fund in New York and with the assistance of Dean W. S. Gray of the University of Chicago, a thorough statistical study of the effects of individual instruction as carried on in Winnetka. Some of the results of this investigation are now available.

We have given all the children from the fourth grade through the seventh the National Intelligence Tests. On this basis, we have figured their intelligence quotients. We recognize, of course, that the meaning of these intelligence quotients, as applied to any individual, is of less value than those obtained by individual examination. On the other hand, in selecting the brightest group of children as a whole, the results are reasonably accurate. The highest fourth of intelligence quotients ranges in the Winnetka schools from 123 to 166. This range includes 192 children for whom our records are complete in all subjects for at least two years of individual instruction. For the purpose of the present study, *a gifted child is defined as a child falling within the top one-fourth of intelligence quotients* as measured by the National Intelligence Test.

The following additional definitions and assumptions must also be borne in mind in interpreting the results of the present study:

1. *Grade* is defined as the average grade in the following subjects, as of September 15th, 1923: arithmetic, language, history-geography, reading, and spelling-writing. It is necessary to take an average of subject grades since a child may be in a different grade in each subject.

2. *Subject grades* are determined by the date of promotion to a certain subject plus one-tenth of a grade for each school month of attendance since that promotion. For example, a child promoted to Grade 5 in reading on March 1st, who, on September 15th, 1923, had been in school four months since that promotion, is counted as in Grade 5.4 in reading. This involves the assumption that it will take him ten school months to complete the reading. It will usually, as our records show, involve considerably less than this. Most children are, therefore, somewhat more advanced than this report indicates. In the occasional case of a child who was promoted to a certain grade in some subject more than ten school months before September 15th and who has not yet reached the standard of the next grade higher in that subject, the child is assumed to have completed nine-tenths of that grade's work. For example, if the child referred to above as having been promoted to Grade 5 arithmetic on March 1st, 1923, had

instead been promoted to Grade 5 arithmetic on March 1st, 1922, and was still in 5th-grade arithmetic in September, 1923, he would be considered as in Grade 5.9 in arithmetic.

3. The *normal length of time* for completing a grade's work in any subject has been assumed to be 37 weeks, exclusive of holidays. During any school year absences which total two weeks or less are ignored. Thus, a pupil who completes a grade's work in 35 weeks of actual attendance is not considered two weeks in advance, but is counted as having done the grade's work in the normal length of time.

4. *Progress* has been computed only for those children from Grades 4 to 7 who have been in the Winnetka schools for at least two years. It has been computed to cover a period of time not in excess of four years, since the first crude beginnings of individual instruction in Winnetka were in September, 1919. The method of computing progress has been this: The grade of the child at the time his progress under individual instruction was begun has been noted. The number of weeks of actual attendance in school from that date to September, 1923, has been calculated. From this, the grade in which he would normally be on September 15th has been found. His actual average grade is then compared with the average grade he should be in according to the number of weeks he has attended school. For each one-tenth of a grade beyond his normal grade, he is credited with a month of acceleration. All progress has been reduced to the *average per two years of individual instruction.*

5. *Middle group* and *low group* are defined as follows: The middle group consists of that half of the children studied whose intelligence quotients range from the lower quartile to the upper quartile. The low group is that fourth of the children with the lowest intelligence quotients. In other words, we have divided the Winnetka children for the purpose of this study into three main groups according to their intelligence quotients—the top one-fourth of these children is counted as the gifted group, the middle half as the middle group, and the bottom one-fourth as the low group. The range of intelligence quotients and the number of children included in each of these three groups are as follows:

Gifted group—92 children—I.Q. 123-166.
Middle group—188 children—I.Q. 100-122.
Low group—93 children—I.Q. 60-100.[1]

Within these limitations and definitions we have completed one statistical study of grade progress which enables us to compare the gifted children with the middle and low group and to see the range of grade-progress among the gifted children.

We have made a small subsidiary study showing the average grade-progress of those children whose I.Q. happened to fall at

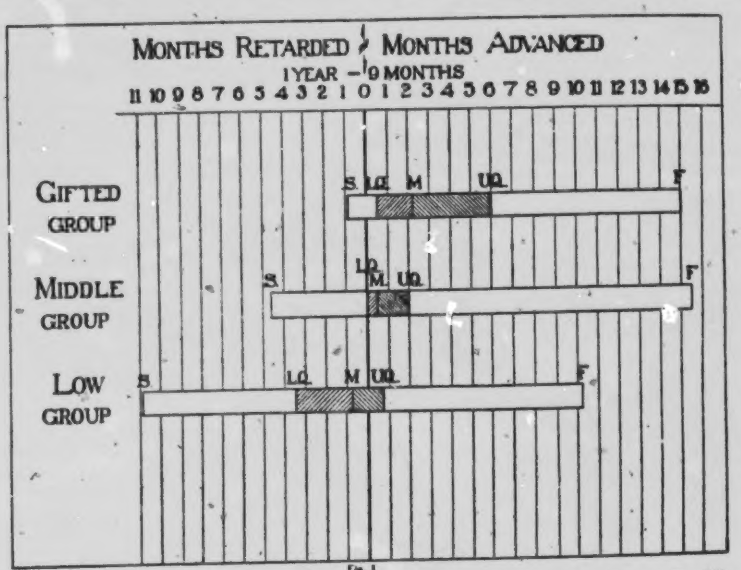

FIG. 1. This shows the progress spread of the gifted group compared with that of the middle and low groups. Read the chart as follows: Of the gifted group the fastest child (F) was advanced 1 year 6 months (15 months) beyond normal at the end of 2 years. The upper quartile child (U.Q.) was advanced 6 months. The median child (M) was advanced 2 months (9 weeks). The lower quartile child (L.Q) was advanced 2 weeks (2 weeks advancement has been considered normal progress in this study). The slowest child of the gifted group was retarded 3½ weeks (1 month).

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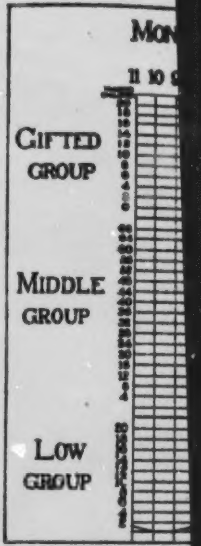
[1] The reason the top quarter is not an exact one-fourth of the total is that eliminations for incomplete records or late entrance in school were made after the children were divided into four equal parts.



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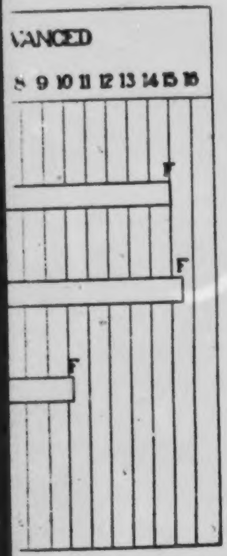

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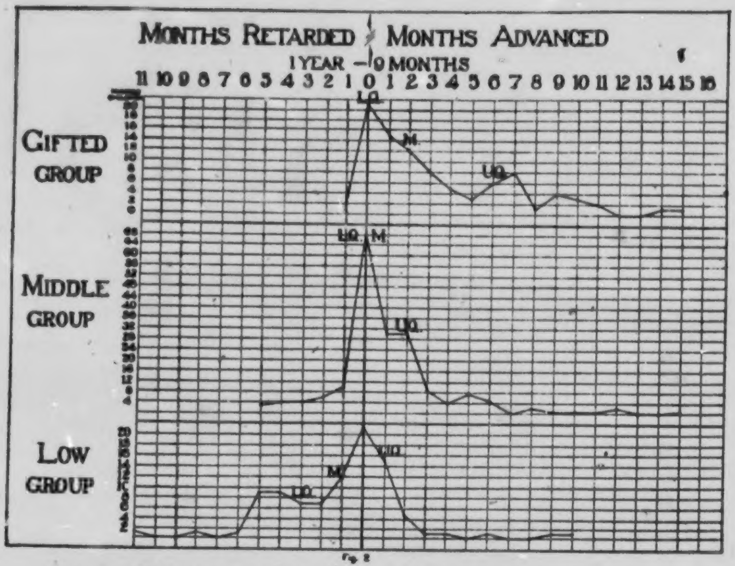

FIG. 2. This gives the distribution curves of the same groups as are shown in Fig. 1. The vertical scale for the middle group is just half that for the gifted and low groups, since the middle contains twice as many children as either of the others. Read the chart as follows: The most rapid progress of the gifted group was made by one child who was 1 year 6 months (15 months) advanced at the end of 2 years of individual work. One child was 1 year 5 months (14 months) advanced; no children were 12 or 13 months advanced; 2 children were 1 year 2 months (11 months) advanced; 3 children were 1 year 1 month (10 months) advanced and 4 children were 1 year (9 months) advanced. The fact that the mode falls at normal in all three groups is due to the tendency of children, teachers and parents to think in terms of a grade a year and to make special effort to have a grade's work completed in each subject as the school year draws to a close.

the median for all children and at the upper and lower quartiles. We are launched on a study of the range of progress by subjects among gifted children and among those of the middle and low groups.

The first of these three studies is shown by Figs. 1 and 2. In Fig. 1 the top bar represents the range of progress of the gifted group, the middle bar the range of progress of the middle group, and the lower bar the range of progress of the low group. Reference to this figure will show that the progress of gifted children has ranged from a lower extreme consisting of a child who is actually a month retarded to an upper extreme represented by a child who is fifteen months, or a year and two-thirds advanced (a year equals nine months).

The lower quartile of the gifted group is advanced only two weeks, the median a little over two months, and the upper quartile six months.

It will pay to analyze the two extreme cases for a moment. Is the child who is retarded a case of mis-classification owing to group testing? Is the child who is the most advanced also the one with the highest I.Q.? Both these questions must be answered in the negative. The former has been tested individually by the Stanford-Binet test. This child, who is a month retarded, has an I.Q. by the National Intelligence Test of 144, by the Stanford-Binet of 150. He is a boy in about the sixth grade who has been under individual instruction for three years. The child at the upper extreme has an intelligence quotient by the National Intelligence Test of 133. The child with the highest intelligence quotient had an I.Q. of 166. Consequently, the child who made the best record is not the child with the highest score.

This same lack of close correlation between intelligence quotient and rate of progress comes out again when one studies the intelligence quotients of the children who fall at the upper and lower quartiles and median point of advancement of this gifted group. The child whose advancement is represented by the lower quartile had an I.Q. by the National Intelligence Test of 153, by the Stanford Binet of 142. The child of median advancement had a National Intelligence I.Q. of 136 and a Stanford Binet of 117, while the child whose rate of progress placed her exactly at the upper quartile had a National Intelligence I.Q. of 128 and a Stanford Binet I.Q. of 124. The progress for these three individuals is actually in inverse proportion to their intelligence quotients on the National Test.

Taking the gifted group as a whole and calculating the coefficient of correlation between I.Q., as measured on the National Intelligence Test and average rate of advancement through the grades, we find that $r = .068$, which is no correlation at all[3]

Nevertheless, while there is such wide variation among individuals in the gifted group, the gifted group, as a whole, is distinctly advanced over the middle and low groups. The lower quartile of the gifted group is advanced as much as the median of the middle group and as the upper quartile of the low group. The median of the gifted group is advanced a trifle more than the upper quartile of the middle group. So far as central tendencies are concerned, therefore, there is no doubt but that there is a direct relation between intelligence quotients and rate of advancement through school subjects. Taking the correlation between the intelligence quotient and rate of advancement for all the children studied—gifted, middle, and low groups combined—we find that $r = .587$. The error comes when one tries to apply what is true of central tendencies of large groups to all the various individuals who make up these groups.

A minor and subsidiary study that bears out this same point has been made as follows. Those children (5 of them) whose I.Q. happened to be exactly the upper quartile I.Q. of all the children studied (122) were compared with the group of 9 children whose I.Q. happened to be exactly the median for all children studied (109) and with those individuals whose I.Q. happened to be exactly 100, which is the lower quartile for all children studied. In each case, the average grade progress of all the individuals having the same I.Q. was computed. The group with an I.Q. of 122 had made just normal progress. The group with an I.Q. of 109 had made an average progress *over four months in advance* of normal, whereas the group with an I.Q. of exactly 100 had averaged exactly normal progress.

This shows again the futility of attempting to group children by intelligence quotients and then treating each group as if it were homogeneous. This point is more strikingly brought out in our third study which is under way.

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[3] Correlation coefficients have also been worked out between I.Q. and advancement for both middle and low groups. For the middle group $r = .08$, while for the low group $r = .407$.

Lacking, at the time that this is written, complete data, the conclusions of the third study will have to be drawn from sample cases. The purpose of this study is to discover whether gifted children are all quick in the same subjects or whether the rate of advancement in different subjects varies among individuals. Let us consider the following seven sample cases (see Fig. 3):

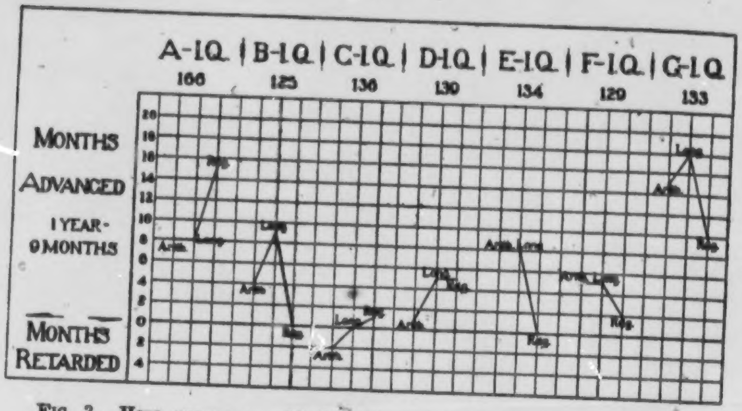

FIG. 3. Here are seven gifted children, or their advancement profiles. Do they look alike? Would they form a homogeneous group? The numbers on the left show the number of months advanced or retarded in 2 years from the normal rate of a grade a year. The profile shows for each child how far advanced or retarded he is in three typical subjects: arithmetic, language, and reading. Read the chart as follows: Child A, whose I.Q. (National) is 166, is advanced 8 months in arithmetic, 8 months in language and 1 year 6 months (15 months) in reading.

Child A has an I.Q. of 166. His reading is advanced one year and six months, his language is advanced eight months, and his arithmetic eight months.

Child B with an I.Q. of 125, is just normal in reading, four months advanced in arithmetic and nine months advanced in language.

Child C, with an I.Q. of 136, is just normal in language, one month ahead in reading, and two months behind in arithmetic.

Child D, with an I.Q. of 139, is one month advanced in arithmetic and five months ahead in language and reading.

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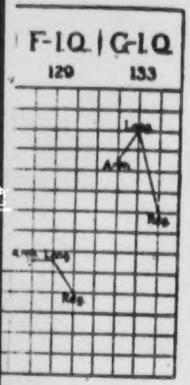

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Child E, with an I.Q. of 134, is normal in reading, but eight months ahead in both arithmetic and language.

Child F, with an I.Q. of 129, is two months ahead in reading and five months ahead in arithmetic and language.

Child G, with an I.Q. of 133, is one year and one month advanced in reading, one year and six months ahead in arithmetic, two years and two months ahead in language.

Under a system of "homogeneous grouping," these seven gifted children would all be given the same quantity and type of work. Child A, who is one year and six months ahead in reading, would be given the same assignments as B and E, who are just normal in reading. Child G, who is one year and six months advanced in arithmetic, would be given the same arithmetic assignments as D, who is one month advanced in this subject, and as C, who is two months behind. It is true that these discrepancies would not appear on the surface under an ability grouping scheme. The teacher, in his effort to hold the children together, would not realize that he was trying to make the child with barely normal ability in some subject do work which was designed for children gifted in this field. The lack of homogeneity among gifted children, is shown for three subjects in Figure 4.

These facts would indicate that if one is to carry on group instruction, making ability groups for gifted children, those ability groups would have to differ with each subject. They would have to include some children whose I.Q.'s would not indicate that they are gifted and exclude some children whose I.Q.'s *would* indicate that they are gifted. The complexity of so many varying types of grouping makes one turn naturally to differentiated individual assignments or to the simple expedient of permitting each child to progress at his own rate in each subject.

In this same connection, let us revert for a moment to the first study. There are many children in the middle group, who, under a classification scheme, would be held to average progress, but who are perfectly capable of doing work that excels that of the lower half of the gifted children. Look back at Fig. 1. Here it will be seen that the 46 individuals of the gifted group who have made less than the median progress are advanced only two months or less.

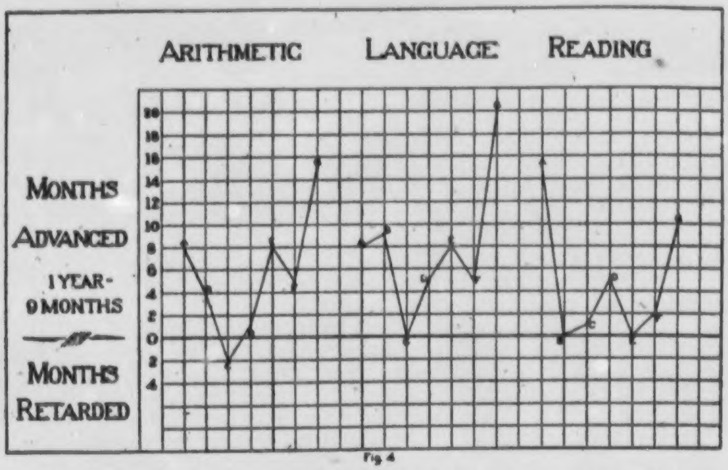

Fig 4

FIG. 4. Here are three profiles of nice homogeneous groups of seven gifted children—just see how homogeneous they are! Read them like this: The arithmetic group has Child A (I.Q. 166) whose arithmetical ability is represented by the fact that in two years he has advanced 8 months beyond normal, Child B (I.Q. 125) 4 months advanced, Child C (I.Q. 136) 2 months retarded, Child D (I.Q. 139) 1 month advanced, Child E (I.Q. 134) 8 montns advanced, Child F (I.Q. 129) 5 months advanced and Child G (I.Q. 133) 1 year 6 months (15 months) advanced.

In contrast with this, the 47 individuals who make up the top fourth of the middle group are advanced from two months to a year and six months. Therefore, under a plan of classification which grouped children by intelligence quotients, nearly half of the children in the gifted group would be misplaced, while an equal number in the middle group would be misplaced.

All of these considerations bring out forcibly the necessity of treating gifted children as individuals instead of treating them as members of a supposedly homogeneous group. Two plans of making adaptation to these individual differences have been tried.

One is the plan described in the first part of this article as the Winnetka technique; it is based upon Frederic Burk's technique in the San Francisco State Teacher's College, and is closely analogous to the work of Sutherland in Los Angeles and of Jessie Mackinder in London. Under this plan, adaptation to individual

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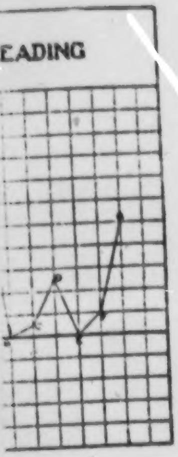

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differences is made by allowing individuals to progress through the various subjects at their own natural rates.

The other plan is that of providing varying amounts of work for different individuals while keeping their progress through the grades uniform. The advantage of this is that presentation of new subject matter and especially class discussions can be carried on more readily than where all the children in the class are at different points in their work. There are, however, certain practical obstacles in the way of it in lower grade schools—obstacles that, unfortunately, are often glossed over so that the teacher thinks she is adapting the work to individuals when she is really only keeping them occupied.

One of these obstacles is the natural tendency of human beings to conserve effort. When a child sees that his progress is identical whether he makes an effort or not, he is liable to 'lie down on the job.' When, therefore, a child with considerable ability finds that the only reward for finishing a certain unit of work ahead of time is that he is given more work, some of the children resort to the very human expedient of not finishing their minimal work ahead of time. This is not, however, the most serious obstacle.

The fact that lower grades are usually taught by one teacher and have access for the most part to but one classroom makes it quite impossible to provide various types of special instruction and activities that would fit the particular needs and abilities of each individual child. Consequently, instead of using the surplus time of the child to develop his particular interest or ability, one uses it by giving additional academic work of the kind usually carried on in the classroom. This frequently means adding to the elementary curriculum for the gifted child material of very doubtful value, on a pretext of enriching his curriculum. The 'enrichment' is in reality mere 'padding.' For example, certain schools attempting this sort of differentiation assign to the average child seven arithmetic problems, to the gifted child ten. As a matter of fact, if the child is really gifted in arithmetic, he probably needs *fewer* problems than the average child in order to give him a grasp of the principle; he certainly does not need more. His time is occupied, it is true, and the teacher is thereby led to believe that successful adaptation has been made to this gifted child.

The chief objection which has been raised to the other alternative—that of permitting children to forge ahead at their own natural rates—has been that it will result in their getting the minimal amount of information and skill and reaching the secondary schools at too young an age.

In Winnetka, we have attempted to solve this problem by letting gifted children move forward each at his own natural rate until they reach the seventh and eighth grades, which are centralized in the junior-high-school building. The junior high school, with its laboratory, shops, and special rooms, provides the organization which is necessary for a satisfactory adaptation of the school to the widely varying needs of gifted children. It is for this reason that in Winnetka we prefer to take full advantage of the rapid progress of gifted children through at least the first six grades. Thereafter, we can handle each case individually, working out with the child the program which seems best fitted to him, and deciding in his particular case whether or not he should go to the high school at an age one or two years younger than that of most children or should have an unusually large amount of special or advanced work.

In this connection, see the case study of an unusually gifted child in the Winnetka schools, described in detail in Chapter XI of this *Yearbook*.

CONCLUSIONS

1. Gifted children allowed to move through school at their own natural rate make, as a whole, distinctly better progress than children of lower intelligence quotients.

2. There is a wide range in the rate of progress of gifted children—so wide that the lower half of them actually progress less rapidly than an equal number of children from the top of the middle group.

3. Gifted children not only differ in average rate of progress, but in the subjects in which they excel.

4. Consequently, any attempt to treat gifted children as a homogeneous group will defeat its own purpose, which is the adaptation of the school work to gifted children.

5. Any attempt to group children by intelligence quotients will result in the misplacement of nearly half of the gifted group and of an equal number of the middle group.

6. Real adaptation of the schools to the gifted children must come through some form of individual instruction which will recognize the wide variety of abilities among gifted children, both as to general rate of progress and as to subjects in which superior progress can be made. This individual work might take the form of differentiated assignments, or the form of permitting children to progress at varying rates through each subject, or a combination of the two such as exists in Winnetka. In either case, the gifted children should not be treated *en masse*, but as the widely differing individuals which this study shows them to be.

C 2. SOME ATTAINMENTS OF GIFTED CHILDREN IN SEGREGATED CLASSES AT LOUISVILLE

MARY L. PATRICK
Director, Bureau of Educational Measurements, Louisville Public Schools,
Louisville, Kentucky

For the past seven years the Louisville public school system has maintained one or more special classes for gifted children. Information relative to the earlier classes has been published elsewhere.[1] It is the purpose of this article to present data relative to the selection and progress of the most recent of these classes,[2] as indicated by standard tests.

I. ORGANIZATION OF THE CLASS

The method of selection of the class was as follows. The principals and teachers of the city schools recommended to the Bureau of Educational Measurements pupils who, in their judgment, were mentally and physically able to do in one year more work than is ordinarily accomplished in a regular grade. School marks, health, and the teachers' judgments as to the child's real ability were the chief factors in determining such recommendations. Each pupil thus recommended was given a Stanford-Binet test by a member of the Bureau of Educational Measurements, who considered the physical development as well as the intelligence of the candidates before endorsing the recommendations.

Group II, consisting originally of twenty-two pupils, ten boys and twelve girls, was selected and organized in September, 1921. Three boys were added later in the year. This group was drawn chiefly from 4B, with a few pupils from 3A, and a few from 4A. The range of chronological ages was from 94 months to 122 months, of mental ages from 132 months to 184 months, and of intelligence quotients from 130 to 185. At the time of admission the median chronological age was 110 months, with 60 percent between 104 and 114 months. The median mental age was 157 months, with 50 percent between 142 months and 168 months. The median intelligence quotient was 142, with 64 percent between 139 and 149.

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[1] Race, Henrietta V., "A Study of a Class of Children of Superior Intelligence," *Jour. of Educ. Psych.*, February, 1918; see also *Improvability*, Teachers College Contribution to Education, No. 124: 1922.

[2] This class is designated in the report as Group II. Similar data concerning another class organized in 1920 (Group I) have been gathered but they are not included for lack of space and because they are essentially like those reported here.—*F.N.F.*

From September, 1921, to February, 1923, these pupils were taught by Miss Fanny Sleadd, who had taught similar classes for several years. The methods used were largely those which tended to produce acceleration, enrichment being more or less incidental. In February, 1923, the class was admitted to a special departmental school. At this time this Group II was considered parallel to Grade 6A. Since its admission to the special departmental school, an effort has been made not to accelerate the group, but to keep its progress through the grades fairly normal by enriching the individual subjects taken by these students. The pupils are still permitted to continue the French as at first or to take an additional subject.

II. RESULTS OF THE FIRST SET OF STANDARD TESTS

The first battery of standardized tests was given to the class between the last of March and the first of May, 1922. The tests used were as follows:

Charters Language Diagnostic Test, Pronouns, Form I
Monroe Arithmetic Reasoning Test, Form II, Test II
Thorndike-McCall Reading Scale, Form III
Woody-McCall Mixed Fundamentals Arithmetic Test, Form II

Table I shows for Group II the intelligence quotient (I.Q.) at the time of selection, the chronological age (C.A.), and the results of tests administered in March and in April, 1922. In this table, and elsewhere in this report, the pupils are arranged in order of their I.Q. in the Stanford-Binet test.

Certain points in regard to Table I are significant.

1. Although about seven or eight months previously, this class, Group II, started as approximately 4B, the medians in all the tests are equal to or superior to the 6B norms given by the authors of the tests. This is the more remarkable in view of the fact that the

TABLE I.—I.Q.'s† AND ACHIEVEMENT TEST RESULTS OF GIFTED CHILDREN IN LOUISVILLE SCHOOLS (MARCH AND APRIL, 1922)

GROUP II			THORNDIKE-MCCALL READING			WOODY-MCCALL ARITHMETIC		MONROE ARITHMETIC		CHARTERS LANGUAGE
Name	I.Q.	Chron. Age	R.A.	R.Q.	R.Ef.‡	Grade§	Score	Princ. Correct	Answers Correct	Score
*AA	185	105	178	169	91	8A	27	22	19	21
*BB	176	104	186	179	101	10A	23	21	17	26
*CC	166	115	[illegible]	163	99	10A	30	19	17	20
DD	160	118	164	138	86	7B	27	23	19	25
EE	152	127	198	156	102	12A	30	25	24	27
FF	149	115	150	130	88	6B	25	19	15	22
GG	148	[illegible]	127	107	72	4A	28	16	15	15
*HH	145	112	[illegible]	146	100	7B	25	16	12	22
II	145	101	[illegible]	151	104	6A	25	11	10	20
JJ	143	115	164	142	100	7B	30	17	13	[illegible]
KK	142	120	198	165	115	12A	31	24	23	[illegible]
LL	142	116	172	149	104	7A	29	17	14	19
MM	142	119	164	138	100	7B	29	20	18	27
*NN	141	113	178	157	112	8A	25	[illegible]	13	25
OO	141	127	164	129	91	7B	25	12	12	19
*PP	141	104	161	154	110	7B	24	22	15	25
*QQ	141	131	198	158	112	12A	22	17	16	25
*RR	140	126	178	132	93	8A	28	24	15	19
SS	140	119	172	144	103	7A	25	13	10	21
*TT	139	118	178	151	109	8A	26	19	18	20
UU	139	117	121	103	73	4A	21	20	14	22
*VV	137	107	178	166	121	8A	31	10	9	22
*WW	137	102	135	132	96	5A	23	13	9	20
*XX	132	113	152	134	100	6A	27	12	12	25
*YY	130	115	198	172	132	12A	25	14	14	21
Upper Quartile	148	118	178	157	104	8A	29	21	17	25
Median	142	115	164	149	100	7B	26	17	15	22
Lower Quartile	140	115	161	138	96	7B	25	13	12	20

*Boy.
†At time of admission
‡Reading efficiency, found by dividing reading quotient by I. Q.
§In Louisville, A is high and B is low.

chronological ages of these children are in general much lower than the usual 5th grade.

2. The median Reading Age is 164 months, while 50 percent of the Reading Ages are between 161 months and 178 months. This corresponds to a median school grade of 7B, with 50 percent of the scores lying between 7B and the end of 8A, while 16 percent make scores corresponding to the median for 1[illegible]A. Attention is directed to the fact that, contrary to the usual findings as to the achievement of superior children, 64 percent of this group have Reading Quotients approximately equal to, or superior to, their Intelligence Quotients, including cases of 121 percent and 132 percent Reading Efficiency. The range below 100 percent Reading Efficiency is considerable; but the lowest score is made by a pupil who entered the class equipped with rural school training only.

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OF TIC	CHARTERS LANGUAGE
Answers Correct	Score
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15	15
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13	19
23	29
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Is the superior Reading Efficiency an indication of the value of segregation of gifted children into special classes under instruction such as these pupils have received, or may this fact be otherwise explained? Group I, which is not reported here, was found to have a still higher Reading Efficiency than Group II. Does the higher record of Group I, which has been segregated a year and a half longer, give further evidence leading to this inference?

3. The Woody-McCall Arithmetic scores for Group II range between the norm for the end of 5B and the norm for the end of 7A; the middle 50 percent of the class make scores to be expected of 6B and 6A.

4. We have been unable to obtain reliable norms for the Monroe Arithmetic Reasoning test. On "Principles Correct" the median for Group II is between the author's tentative norms for 6A and 7A.

5. On the Language test Group II has a median score equivalent to that for the beginning of 6A, with 50 percent between 6B and 7A.

III. RESULTS OF THE SECOND SET OF STANDARD TESTS

Approximately one year later Group II was tested by a similar battery of tests, namely:

Charters Language Diagnostic Test, Miscellaneous A, Form I
Monroe Arithmetic Reasoning Test, Form II, Test II
Thorndike-McCall Reading Scale, Form I
Woody-McCall Mixed Fundamentals Arithmetic Test, Form II
Woody Silent Reading, Forms I and II[3]

Table II gives the results for Group II (now parallel to 6A).

1. From Table II we note the very superior reading scores of a number of the pupils. Twenty-three percent (four pupils) in

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[3] This is a test not yet on the market, described by Dr. Woody at the Cleveland Meeting of the Directors of Educational Research, March 1923. Each form consists of nine paragraphs of graded difficulty. Each paragraph is followed by five statements including ideas expressed in the paragraph. The pupil is to check the one statement which best expresses the main thought of the paragraph.

TABLE II.—RESULTS OF ACHIEVEMENT TESTS OF GIFTED CHILDREN IN LOUISVILLE SCHOOL
(April and May, 1923)

GROUP II	THORNDIKE-MCCALL READING				MONROE ARITH.		WOODY ARITH.	WOODY READING		CHARTERS Language
								Forms		
Name	R.A.	R.Q.	R.Ef.	Grade	Princ. Correct	Answers Correct	Score	1	2	Score
*AA	218	186	100	Superior Teacher	27	21	28	3	4	27
*CC	203	159	98	12A	27	18	34	6	6	25
*EE	218	157	103	Superior Teacher	27	20	31	7	5	30
FF	164	129	87	7B	—	—	—	8	7	24
GG	134	94	63	4A	16	7	27	2	3	12
*HH	218	173	119	Superior Teacher	21	21	27	3	6	30
II	169	150	103	7A	19	13	26	4	3	26
JJ	181	143	100	9B	19	17	32	4	5	22
KK	218	165	116	Superior Teacher	27	21	32	7	6	25
LL	169	132	93	9B	24	17	30	6	5	26
*NN	152	121	85	6B	17	15	29	6	3	25
*PP	164	140	100	7B	21	11	26	4	4	30
*RR	203	146	104	12A	19	16	27	1	—	—
SS	192	148	105	11A	23	14	29	5	8	27
*TT	169	130	94	7B	21	20	28	4	9	28
*VV	181	150	100	9B	16	13	27	3	1	21
*XX	184	131	100	7B	27	15	24	4	5	13
*YY	192	147	113	11A	24	19	32	4	5	23
Upper Quartile	203	159	104	12A	27	20	31	6.3	6.3	27
Median	181	147	100	9B	23	17	28	4.5	5.2	25
Lower Quartile	169	133	94	7B	19	14	27	3.7	3.9	22
Grade Norms	160	100	—	end of 6A	15.5	10.2	25	4.4	4.4	17.7

*Boy

Group II made scores equal to or above the norm for 'superior teachers.' An additional 12 percent (two pupils) in Group II made scores equal to or above the high-12th-grade norms. Only 35 percent fall below the low-9th-grade norms.

2. In the Monroe Arithmetic Reasoning test there is considerable improvement shown over the preceding year in the medians and quartiles of Group II in both 'Principles Correct' and 'Answers Correct' (the scores of those in this class a year before, who have now dropped out, were about equally distributed above and below that year's median). The change in speed is also balanced; *i.e.*, of the present group some worked faster and some slower than in the preceding year. There seems to be no definite relation for this group between change in speed and change in accuracy.

3. Comparing the scores of Group II with those made a year before by the same group on Form I of the Woody-McCall Mixed

Fundamentals Arithmetic test, we note improvement of from one to four problems in all cases except four. In two of these cases the loss was only one problem.

4. On the Charters Language test (Miscellaneous A) the highest norm given (22.2) is for 8A. Seventy-five percent of Group II make scores equal to, or above, this norm. Comparison of the results of this test with the results obtained with the form used the preceding year is precluded on account of the different elements measured.

5. On Forms I and II of the Woody Silent Reading Scale the scores of Group II slightly exceed the tentative norm for the 7th grade, and equal or exceed the norm for a parallel 7B.

Both forms of this test were given to two 5B groups in different schools, these classes having approximately the same chronological ages as Group II. One of these Groups had a median reading quotient on the Thorndike-McCall Reading Scale, Form I, of 122. Its median for Woody Silent Reading, Form I, was 5.5; for Form II, 4.3. The other 5B class had a median reading quotient on the Thorndike-McCall Reading Scale of 100. Its median for Woody Silent Reading Scale, Form I, was 4.2; for Form II, 4.5. Our findings give no adequate explanation of the fact that Group II has a median not appreciably higher than that for the two 5B classes and the parallel 7B class. The fact that medians for all these classes are the same and equal to the author's tentative 7A norm is in itself interesting.

IV. Results of the Third Set of Standard Tests

About the middle of October 1923, Group II was given the Stanford Achievement Test, Advanced Examination, Form A.[4] This seemed to offer a fairly complete battery of tests, and possessed the further advantage of having all the scores expressed in terms of age, all derived in the same manner, and presumably from the same students. These facts make more reliable the comparisons from age to age, and lend significance to the Composite Educational Age.

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[4] This test includes: 1. Reading (a) Paragraph Meaning, (b) Sentence Meaning, (c) Word Meaning; 2. Arithmetic (a) Computation, (b) Reasoning; 3. Nature Study and Science; 4. History and Literature; 5. Language Usage; 6. Spelling (in sentences dictated).

In Table III are shown the individual Achievement Ages and Achievement Quotients for the various subjects and for all subjects combined.

It is to be noted that the range of Reading Ages in this test is from 158 months to 207 months, and of Reading Quotients is from 114 to 165. The median Reading Age is 188 months and Reading Quotient is 143 months. This shows a closer range of Reading Ages and Reading Quotients than appeared in either of the Thorndike-McCall Reading Scales. The order of both Reading Age and Reading Quotient varies considerably in the two types of tests. This difference may be due in part to the fact that the Stanford Reading score includes not only understanding of paragraphs, but also sentence meaning and word meaning. It is doubtless influenced also by the fact that the Stanford "paragraph meaning" test required, in general, keeping in mind the whole thought of the paragraph, while the Thorndike-McCall Scale calls for attention to one small unit at a time.

The median Reading Quotient in the Stanford test equals the median I.Q. of the Group and only two pupils make a Reading Quotient below the lowest I.Q. for the group (130).

The median History and Literature Quotient and the median Language Quotient also approximate the I.Q. In considering the lower achievement quotients, namely the median Spelling Quotient of 124 and the median Nature Study and Science Quotient of 128, we may note that spelling rarely correlates highly with intelligence and that scientific nature study receives its major emphasis in the upper grades. The educational ages for even these subjects indicate an attainment presumably equivalent to the first year of the high school. (The authors give no grade equivalent as high as the majority of these scores.)

Using the median Composite Educational Age of this test as the sole criterion, it would appear that *these pupils are apparently already doing a type of work equivalent to that done by superior high-school students.*

TABLE III.—RESULTS ATTAINED BY THE LOUISVILLE GIFTED CLASS (GROUP II) ON THE STANFORD ACHIEVEMENT TEST

TABLE III.—RESULTS ATTAINED BY THE LOUISVILLE GIFTED CLASS (GROUP II) ON THE STANFORD ACHIEVEMENT TEST

	READING		ARITHMETIC		NATURE STUDY AND SCIENCE		HISTORY AND LITERATURE		LANGUAGE USAGE		SPELLING		EDUCATIONAL	
Name	Age	Quo.	Age	Quo.	Age	Quo.	Age	Quo.	Age	Quo.	Age	Quo.	Age	Quo.
AA	205	165	210	170	187	151	194	156	199	162	172	139	198	159
CC	188	143	210	156	174	129	195	145	192	143	161	123	180	141
EE	201	139	200	139	196	134	201	139	222	153	165	113	195	133
FF	191	143	168	125	177	132	186	139	189	141	150	112	175	131
GG	158	114	168	121	153	111	157	114	156	112	156	112	158	114
HH	188	131	191	134	172	120	204	142	196	137	186	130	189	131
II	188	158	176	146	156	131	178	148	196	165	207	174	183	154
JJ	187	140	180	135	177	133	193	144	170	127	151	113	175	131
KK	207	150	214	154	176	126	191	137	201	144	184	132	200	144
LL	181	134	194	145	163	121	178	132	189	140	172	128	181	134
NN	191	144	172	130	190	143	199	151	189	143	178	135	184	139
PP	189	152	188	152	190	153	207	167	196	158	186	150	192	155
RR	189	129	186	127	177	121	195	134	215	140	180	123	186	127
SS	191	139	188	137	149	109	171	125	210	154	169	124	180	131
TT	198	144	178	129	183	132	183	132	172	124	166	120	180	130
VV	182	144	180	142	162	128	182	144	201	160	186	147	181	143
YY	188	136	194	142	168	121	191	138	183	132	169	122	184	133
Upper Quartile..	191	144	194	146	183	133	195	145	199	154	184	135	189	144
Median...	188	143	186	139	176	129	191	139	196	141	172	124	181	133
Lower Quartile..	188	136	178	130	163	121	182	134	189	139	166	120	180	131

Single tests, or even two or three such tests, are not always adequate measures of the attainments of individual pupils. This is shown by the discrepancies in the test scores reported in this study. The discrepancy may be due (1) to the effect of specific training for speed, as in the Monroe Arithmetic Reasoning test, (2) to the fact that different abilities are measured, as in the two forms of the Charters Language test; (3) to unequal values of scale steps, as in the Thorndike-McCall Silent Reading test; or (4) to the fact that the upper limit of a test may be too low or may have been arbitrarily determined.

Thus, the fact that few individuals in Group IV make scores involving the last four questions of Form 3 in the Thorndike-McCall Reading and that they do show improvement when later measured by Form I, may indicate the value of the scale for pupils in the lower ranges of ability. The results secured from administering this test to 10,000 pupils (Grades 4 to 8) in the Louisville Schools show relatively high scores for the intermediate grades, and relatively low scores for the upper grades. This fact tends to substantiate these inferences.

The presence of so many perfect scores in the Monroe Arithmetic test, the Charters Language Test, and of so many scores above the 8th-grade norm in the Woody Arithmetic test (which the gifted children generally completed in about 15 minutes) indicates that these tests are not adequate measures of the achievements of gifted classes in the upper grades.

Again, the scores for Subject Ages about fourteen in the Stanford Achievement Test have been obtained, not on the basis of the averages for unselected age groups, but, as the authors explain, by extension "upward to include year 18 upon the basis of the normal distribution of subject and educational ages." (*Manual*, p. 41). The arbitrary selection of Year 18 as the upper limit sets a limit on the possible achievement quotient as the pupils approach Year 14.

The fact that a given test measures only a small portion or a single phase of a given subject makes it essential to state definitely that a pupil's achievement is such an amount *in terms of this particular scale*. Note the difference of elements measured in Charters Pronoun test, Charters Miscellaneous A and in the Stanford Language, for instance. The first two include only points in technical grammar while the latter involves discrimination in the choice of words. The three forms of reading in the Stanford Achievement test, the Woody Silent Reading test, and the Thorndike-McCall Scale measure distinctly different elements, and none measures specifically *speed* of reading. The proper weighting of the different phases of a complex act like reading presents a problem as yet unsolved.

If, as some authorities assume, mental growth ordinarily ceases at the approximate age of sixteen, to what mental age may gifted children attain before this development ceases? Or, in what other terms than mental age may we express such intellectual maturity? Is it yet proved that development ceases at this time, or is Dr. Link correct in pointing out diversity of environment and training as efficient stimuli for different types of development, or as complicating the problem of measuring development versus special training, etc.

Results of subsidiary Binet tests, given in October, 1923, in comparison with the scores of the Stanford Achievement test, as well as those obtained for the Thorndike-McCall Reading Scale, Form 3, indicate that *under appropriate treatment the gifted child tends to measure up in achievement to the standard set by his mental age.*

V. RESULTS OF STANDARD TESTS OF SOCIAL AND TEMPERAMENTAL TRAITS

In order to have a measure of some of the social and temperamental traits, the Downey Group Will-Temperament test and the Chassell-Upton Citizenship scale, Forms D and G, were selected. Pupils of the two gifted classes and of the parallel groups rated themselves on Forms D and G of the Citizenship scales. Departmental teachers, thoroughly acquainted with the children, rated all groups on Scale D. The following facts are interesting:

1. All three teachers rate the children higher than they rate themselves.

2. The average difference between the teacher ratings and the self ratings is about 35 points.

3. On Scale D, for the children in the regular grade, the range of ratings by teachers is 270 to 300, while the range of self ratings is 240 to 270.

4. On Scale D, for the gifted children, the range of ratings by teachers is 330 to 378, while the range of self ratings is 270 to 310.

5. The teachers rate gifted children very much higher than they rate the members of the regular classes, while the gifted children rate themselves just above the range which the children in regular grades apply to themselves.

6. The correlation between the teacher ratings and self ratings on Scale D is plus .08.

7. The correlation between self ratings on Scale D and Scale G is plus .68.

The two purposes for which a scale of this type may be valuable are (1) as a device for classifying pupils, and (2) as a teaching device, serving to focus the attention of the children on the qualities in which development is needed. The following difficulties in such a scale are noted by the authors—namely, (1) the subjective nature of the judgments, (2) the absence of a uniform standard as to what constitutes average attainment in a given habit or attitude, and (3) the inability of the teachers to know the status for every pupil of the many habits and attitudes listed. Owing to these handicaps, our results indicate that the chief value of the Citizenship scale is as a teaching device.

Pupils of the two gifted classes and of the control group took the Downey Group Will-Temperament test in May, 1923. While Dr. Downey does not consider the total scores (for adults) very significant, it is interesting to note that in the younger gifted class, Group II, there is only one pupil who makes as high a score as the lowest total score (61) of the older gifted class, Group I. Since there is a larger number in each of the control groups, the range of total scores for them is wider, but the median and lower quartile for the 7B group are 7 or 8 points lower than for the 8A group. The upper quartiles of these control groups are identical with the median (64) for Group I.

About 25 percent of the control groups may be readily classified as slow, while 25 percent of the gifted groups are of the quick type. About 9 percent of the gifted groups are 'slow' and 22 percent are 'forceful.' The majority of the remainder are 'atypical.' The parallel groups show about 18 percent 'forceful,' 18 percent 'atypical,' 18 percent 'balanced,' and 6 percent 'quick,' while the remainder are scattered through the other classifications. The specific "profiles," differentiating themselves on the basis of the first four traits, the next four traits, and the last four traits, are more definitely marked in Group I than in Group II. Since the quick and the forceful types are most characteristic of Group I and these types are frequently found with high scores, it is probable that the differentiating into quick and forceful types occurs more rapidly in early adolescence among gifted children than among normal children.[5]

The following similarities of all groups may be of interest: (a) low on speed of movement, (b) low on co-ordination of impulses, (c) medium on flexibility, (d) medium to high on motor impulsion.

The following differences are also noted:

1. Group I ranks from medium to high on speed of decision. Group II shows a scatter, and the control groups rank from low to medium.

2. Group II and the control groups are low on 'self-confidence,' while in Group I 50 percent score high on 'self-confidence.'

3. Group II is low to medium on 'non-compliance,' while Group I and the control groups show a wide scatter.

4. In 'interest in detail' Group II and the control groups score high, while Group I shows differentiation into high and low.

5. On 'volitional preservation' Group I and 7B show a wide range, Group II scores low, and 8A scores medium to high.

The points of similarity and difference of these traits among the various groups is verified by the judgment of the principal of the departmental school and by the ratings for these traits on the Chassell-Upton scales.

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[5] It should be noted here that Dr. Downey's scoring was determined on the basis of results made by adults and that these were distributed on a percentile basis rather than on that of the normal distribution curve.

These scales do not test initiative, which the teachers and principals consider to be the most marked trait of gifted children, nor have we found appropriate measures for the traits involved in personal relations, such for example as tact, leadership, subordination to the group, co-operation with the group, etc.[6]

VI. CONCLUSIONS

What conclusions, then, may we draw from the data presented in this paper?

1. In all academic work, so far as these tests are able to measure it, these gifted pupils are superior to the normal for their age or grade.

2. In order to measure adequately the achievements of gifted pupils in the upper grades, more difficult tests than those used in this study must be employed.

3. Selection of tests with scores expressed in terms of educational age is essential to the formulation of any valid conclusions as to the relation of achievement and intelligence.

4. The limitations of the tests available do not permit us to say with certainty whether or not these gifted pupils have an achievement quotient equal to their intelligence quotient. These groups, however, seem to approach that goal more nearly than do gifted children in the regular classes.

5. The Downey Group Will-Temperament test furnishes a means for roughly picking out certain characteristics of the individuals and of the groups tested.

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[6] Information as to the personal and social aspects, and the administrative aspects in the education of gifted children has been furnished the appropriate committees of the SOCIETY, hence details with reference to these aspects have been omitted from this discussion.

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C 3. STANFORD ACHIEVEMENT TESTS WITH A GROUP OF GIFTED CHILDREN

MARGARET V. COBB AND GRACE A. TAYLOR
Teachers College, Columbia University (for the Committee)

The comparisons of this article are based on mental ages rather than chronological, leaving for another article the discussion of validity of Stanford-Binet and other intelligence quotients at extremely high levels. For present purposes, validity will be assumed, and predictions of achievement based on mental measurements will be checked up by actual achievement on educational tests.

The subjects of this study were 52 superior children in the Special Opportunity Class of Public School 165, Manhattan, described in other articles in this volume.[1] This class was started in September, 1922, as a public school experiment, by a committee composed of two representatives from the school and three from Teachers College. The purposes of the committee were to provide a better educational grouping for approximately 50 children with intelligence quotients over 135; to determine experimentally, so far as possible, what was the best educational procedure to follow with the group and with other groups similar in respect to intelligence; and to provide such of these opportunities for this group as seemed feasible. Fewer than 50 children had been located when school opened, so that enrollment continued until January first. By November first the group contained about 30 children, and was then divided and placed in two rooms; the children in one room were of I.Q. from 135 to 154, and in the other 155 to 190. The children came from Grades III-A to VI-B, inclusive. Chronological ages ranged approximately from 7½ to 9½. These two groups remained constant, except as described, during the school year 1922-23, with the exception of three or four exchanges of children from one group to another, the withdrawal of six children, and the enrollment of six others. More informal methods of instruction than are usual in public schools were introduced in the rooms, but changes in curriculum have been limited by the necessity of meeting the minimal requirements of the public school system. Curriculum changes will, it is hoped, become progressively more possible. One reason for adhering to these standards was the possibility that children might move away, or for other reasons withdraw from the class at any time, and it was desirable that they should be able to transfer to a specific grade in another public school, rather than to have difficulty in classification. Children of high ability in arithmetic, spelling, etc., as indicated by educational tests, were excused from regular daily work in these subjects. French was added to the curriculum. Excursions to illustrate various topics studied were instituted beyond the usual number arranged for regular classes. It was not, however, the aim of the committee to have these children cover the curriculum as rapidly as possible. It was rather to offer a more extended curriculum 'enrichment' rather than speed.

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[1] See Article by Hollingworth and Taylor.

At the beginning of the second year, September, 1923, French was continued, and a group of 22 of the children began the study of algebra. In addition, a study of civilization, or of man's activities, was made the center of interest, and is being developed jointly by the children and those in charge. After school hours, play groups have been organized. A small group for voice culture has been formed by the parents of some of the children. Classroom equipment is gradually being acquired beyond that of the average schoolroom of the corresponding grades, particularly library books and scientific apparatus. In brief, this group differs from others in that especially intelligent children of approximately the same chronological age have been brought together, while the usual school environment and curriculum have been somewhat enriched.

On September 14, 1923, these children were given the Stanford Achievement Test. Six children were absent; five of these took the test during the month, and one on November 20th. For comparison with these results, mental ages were reckoned as of September 14, 1923, on the basis of the first Stanford-Binet Intelligence Test which each child had taken. Table I shows in detail, for each individual, the chronological and mental ages and the grade status of September 14, 1923, and the grade standing reached in each test of the Stanford Achievement Test. The following gen-

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FIG. I.—DISTRIBUTIONS OF CHRONOLOGICAL AGE, PRESENT GRADE STATUS, EDUCATIONAL AGE, AND MENTAL AGE
Vertical Lines Indicate Medians

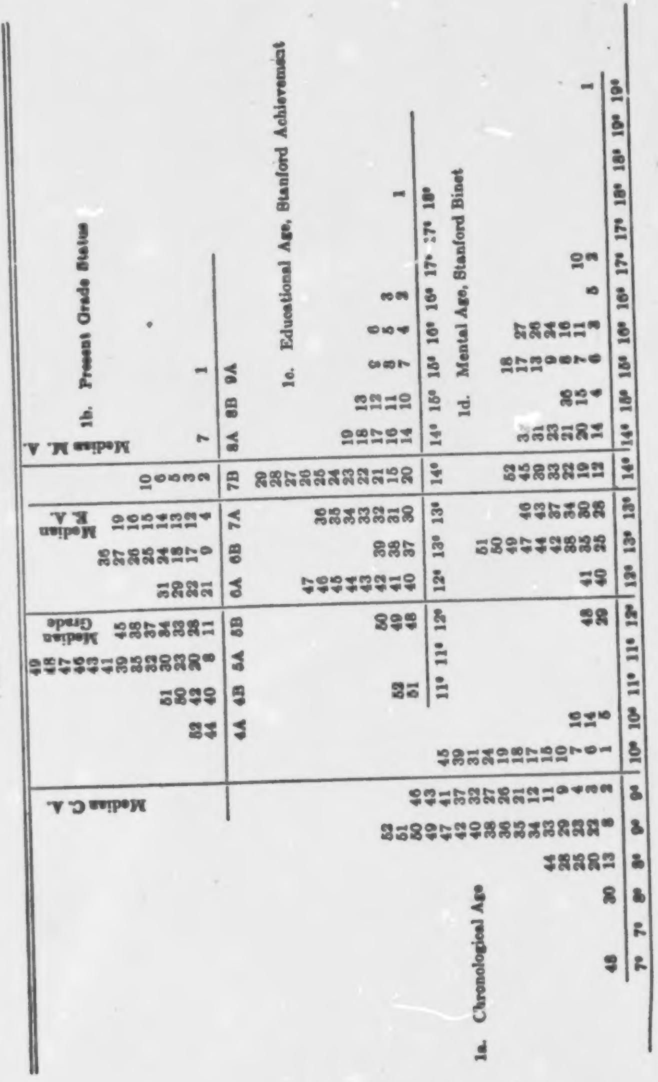

TABLE I.—GRADE-STATUS AND EDUCATION, MENTAL, AND CHRONOLOGICAL AGES OF FIFTY-TWO GIFTED CHILDREN

Pupil	Par. Read.	Sent. Rdg.	Vocab.	Spell.	Lang. Usage	Hist. Lit.	Arith. Prob.	Arith. Comp.	Science and Nature Study	Total Score	Educ. Age	Men. Age	Chron. Age	Pres. Grade
1.	H. S.	H. S.	H. S.	H. S.	H. S.	H. S.	H. S.	H. S.	H. S.	98.5	18–0	19–6	10–3	H. S.
2.	H. S.	H. S.	H. S.	H. S.	H. S.	H. S.	H. S.	H. S.	8	89.6	16–10	17–4	9–10	7B
3.	H. S.	H. S.	H. S.	H. S.	8	H. S.	H. S.	H. S.	8	87.85	16–7	16–4	9–9	7B
4.	9	9	H. S.	H. S.	H. S.	H. S.	H. S.	H. S.	7B	86.45	16–4	15–2	9–8	7A
5.	9	H. S.	H. S.	H. S.	H. S.	H. S.	9	H. S.	7B	85.45	16–3	16–9	10–8	7B
6.	H. S.	H. S.	H. S.	H. S.	H. S.	H. S.	H. S.	H. S.	7	83.9	16–1	15–7	10–5	7B
7.	9	H. S.	H. S.	H. S.	7	H. S.	8	H. S.	8	82.65	15–11	15–9	10–1	8A
8.	H. S.	H. S.	H. S.	9	H. S.	H. S.	8	6	H. S.	80.4	15–6	15–10	9–2	5A
9.	H. S.	H. S.	H. S.	H. S.	9	H. S.	H. S.	6	8	80.15	15–7	15–6	9–8	6B
10.	8B	H. S.	H. S.	H. S.	8A	9	8	8	6	77.4	15–3	17–5	10–1	7B
11.	H. S.	H. S.	H. S.	H. S.	H. S.	9	7	6A	8B	77.3	15–3	16–1	9–11	5B
12.	8B	H. S.	H. S.	H. S.	H. S.	H. S.	7B	8A	6	77.15	15–3	14–4	9–11	7A
13.	8B	6	6	H. S.	H. S.	H. S.	8	H. S.	7	76.15	15–1	15–6	8–11	7A
14.	7B	9	9	9A	7B	H. S.	7B	7	7B	73.65	14–10	14–9	10–6	7A
15.	6	8A	9A	H. S.	9A	8B	8	8A	6B	72.55	14–8	15–1	10–3	7A
16.	8B	9	7B	8	7	H. S.	8	8A	6	71.1	14–7	16–2	10–9	7A
17.	7	6B	8	H. S.	9A	9	7B	7B	7A	71.95	14–7	15–8	10–2	6B
18.	H. S.	6B	9	9	H. S.	8	6B	8	6	71.4	14–6	15–6	10–2	6B
19.	7	6	7B	9	7B	8B	H. S.	7B	7	71.35	14–6	14–4	10–5	7A
20.	7A	9	8A	9	8	9	7B	5	7	69.45	14–3	14–6	8–10	5A
21.	8A	6	7	H. S.	5B	7B	8A	8	6B	68.15	14–2	14–5	9–10	6A
22.	9	H. S.	8	8A	9	7A	7	6	6	68.1	14–2	14–5	9–1	6A
23.	8A	H. S.	9A	7	7B	H. S.	6B	6	6	67.4	14–1	14–6	9–5	5A
24.	7	9	8A	8A	7B	7B	8	6	6B	67.4	14–1	16–3	10–3	6B
25.	7	7	7A	H. S.	7	6B	6B	6	7A	67.4	14–1	13–0	8–8	6B
26.	7	9	8B	7B	7	7	7B	6A	7	67.0	14–1	16–4	9–7	6B
27.	7	9	8	7	9	7	8	6	7	66.8	14–1	16–4	9–11	6B
28.	5B	8	7	H. S.	8	6B	6B	5B	7	66.8	14–1	13–10	8–10	5B

Pupil	Par. Read.	Sent. Rdg.	Vocab.	Spell.	Lang. Usage	Hist. Lit.	Arith. Prob.	Arith. Comp.	Science and Nature Study	Total Score	Educ. Age	Men. Age	Chron. Age	Pres. Grade
29.	7B	6B	7B	7B	8	9B	7B	6	7A	66.5	14–0	12–2	9–1	6A
30.	7	6B	7	8B	6B	7B	7B	6	7B	66.25	13–11	13–11	8–4	5A
31.	7	8A	7A	9	H. S.	7B	7	5B	5B	66.15	13–11	14–10	10–3	6A
32.	H. S.	H. S.	7B	7	H. S.	7B	7	5B	5B	65.9	13–11	14–6	9–6	5A
33.	6	9	9	7A	H. S.	8A	6	7B	6	65.35	13–10	14–2	9–4	5B
34.	7	9A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

21.	8A	6	7	H. S.	5B	7B	8A	8	6B	68.15	14-2	14-8	9-10	6A
22.	9	H. S.	8	8A	9	7A	7	6	6	68.1	14-2	14-5	9-1	6A
23.	8A	H. S.	9A	7	7B	H. S.	6B	6	6	67.4	14-1	14-6	9-5	5A
24.	7	9	8A	8A	7B	7B	8	6	6B	67.4	14-1	16-2	10-2	6B
25.	7	7	7A	H. S.	7	6B	6B	6	7A	67.4	14-1	13-0	8-5	6B
26.	7	9	8B	7B	7	7	7B	6A	7	67.0	14-1	16-4	9-7	6B
27.	7	9	8	7	9	7	8	6	7	66.8	14-1	16-4	9-11	6B
28.	8B	8	7	H. S.	8	6B	6B	5B	7	66.8	14-1	13-10	8-10	5B

Pupil	Par. Read.	Sent. Rdg.	Vocab.	Spell.	Lang. Usage	Hist. Lit.	Arith. Prob.	Arith. Comp.	Science and Nature Study	Total Score	Educ. Age	Men. Age	Chron. Age	Pres. Grade
29.	7B	6B	7B	7B	8	9B	7B	6	7A	66.5	14-0	12-2	9-1	6A
30.	7	6B	7	8B	6B	7B	7B	6	7B	66.25	13-11	13-11	8-4	5A
31.	7	8A	7A	9	H. S.	7B	7	5B	5B	66.15	13-11	14-10	10-3	6A
32.	H. S.	H. S.	7B	7	H. S.	7B	7	5B	5B	65.9	13-11	14-6	9-6	5A
33.	6	9	9	7A	H. S.	8A	6	7B	6	65.35	13-10	14-2	9-4	5B
34.	7	9A	8	7B	6	9B	8A	5	5B	63.75	13-8	13-10	9-3	5B
35.	7B	8	7	7B	8	7	6B	5	6	62.9	13-7	13-0	9-2	5A
36.	7B	6	7	8	7	7	7A	H. S.	4	62.7	13-7	15-0	9-3	6B
37.	7	7	6A	6A	7A	8A	7	7B	6	60.35	13-3	13-10	9-11	5B
38.	6B	5	6A	8A	8A	7	7	7A	5	59.9	13-3	13-2	9-5	5B
39.	7B	7	7B	7A	8	8A	6	4	7B	59.3	13-2	14-3	10-2	5A
40.	6B	8A	7B	5	6B	8	6	5B	6A	56.6	12-11	12-8	9-4	4B
41.	6A	7B	7B	6B	6	7A	6B	5A	6	56.1	12-10	12-11	9-6	5A
42.	6	8A	7B	6B	5	8B	7A	5	5A	55.95	12-10	13-3	9-0	4B
43.	7	8A	7	5B	6A	7	7A	5B	5	55.45	12-9	13-10	9-10	5A
44.	7B	7A	7B	4	H. S.	8B	6	5	6A	55.05	12-9	13-3	8-7	4A
45.	5	7	6	6	4	6	7A	7	5B	54.9	12-9	14-3	10-0	5B
46.	7B	6A	5	7	6A	8A	6	4B	5	54.35	12-8	13-6	9-6	5A
47.	5	6	5B	7B	7	7	7A	4	5A	53.15	12-6	13-1	9-3	5A
48.	6	5	6A	6B	6	6	7A	5B	5A	52.55	12-5	12-4	7-4	5A
49.	7	6B	6	5	8A	7A	5B	5	5B	52.1	12-4	13-4	9-5	4B
50.	5A	6	7	6B	7	7A	5	5	5B	51.75	12-3	13-0	9-4	5A
51.	6A	4	5	5	5B	4	6A	4B	5B	42.3	11-4	13-2	9-3	4B
52.	4B	5	5	4B	5A	5	7	5	4A	41.1	11-3	14-5	9-4	4A

*7a is first semester, 7B second semester of the 7th year; the rating 7 is between 7A and 7B; and correspondingly for other grades. H. S. means beyond 9th Year.

TABLE II.—SUMMARY OF RESULTS, STANFORD ACHIEVEMENT TEST

Test	Score Aver.	Grade Aver.	Identification Number	Educational Age Lowest	Educational Age Aver.	Educational Age Highest	Identification Number
1. Paragraph Meaning....	77.96	7B	(52)*	10.9	14.5	18.0	(1)
2. Sentence Meaning......	55.25	8A	(51)	10.5	14.6	17.9	(3)
3. Word Meaning........	55.54	8A	(51, 52)	11.7	14.4	18.4	(1)
4. Arithmetic Computation..............	106.92	6	(39, 47)	10.6	13.4	17.10	(2, 4)
5. Arithmetic Problems...	83.77	7B	(50)	11.8	14.3	19.6	(1)
6. Science and Nature Study..............	49.34	6	(52)	9.6	12.11	17.2	(1)
7. History and Literature.	53.39	8	(51)	9.6	14.8	17.8	(1)
8. Language Usage.......	33.65	8A	(45)	10.4	14.5	17.6	(1)
9. Dictation............	154.0	8A	(44)	10.11	14.6	20.0	(1)
Total..............	67.40	7B	(52)	11.3	14.1	18.0	(1)

*Individuals are numbered in Table I; these numbers are used throughout the article for reference to individuals.

This table is read thus: In paragraph meaning the average score is 77.96, which is a 7B average; the lowest educational age in this test is 10.9 years, gained by Pupil No. 52; the average educational age is 14.5 years; the highest 18.0 years, gained by Pupil No. 1.

TABLE III.—DISTRIBUTION OF FIFTY-TWO GIFTED PUPILS BY MENTAL AGE AND BY EDUCATIONAL AGE

Mental Age (Stanford-Binet)		Educational Age (Stanford Achievement)
1	19–6	
	19–0	
	18–6	
	18–0	1
	17–6	
10 2	17–0	
5	16–6	2 3
27 26 24 16 11 3	16–0	4 5 6
18 17 13 9 8 7 6	15–6	7 8 9
36 15 4	15–0	10 11 12 13
32 31 23 21 20 14	14–6	14 16 17 18 19
52 45 39 33 22 19 12	14–0	20 15 21 22 23 24 25 26 27 28 29
46 43 37 34 30 28	13–6	30 31 32 33 34 35 36
51 50 49 47 44 42 38 35 25	13–0	37 38 39
41 40	12–6	40 41 42 43 44 45 46 47
48 29	12–0	48 49 50
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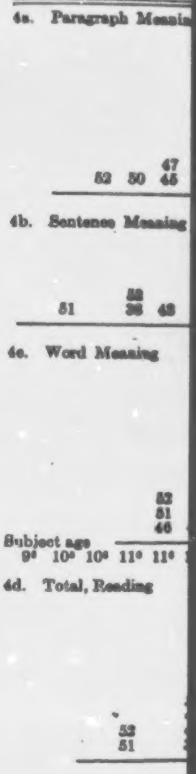

eral tendencies are evident from Tables I to III and the accompanying graphs, Figures 1a to 1d.

1. Not only is there a general tendency for these children to stand above their chronological age in the Stanford Achievement Test, but it is literally true, as is shown in the age distributions by tests in Tables IVa to IVk, that there is no child in the group who does not stand better than the average for his chronological age in every single one of the tests.

TABLE IV.—DISTRIBUTIONS OF AGES ACHIEVED BY FIFTY-TWO GIFTED PUPILS ON THE SEVERAL TESTS IN THE STANFORD ACHIEVEMENT TEST

Subject age	9^{6}	10^{0}	10^{6}	11^{0}	11^{6}	12^{0}	12^{6}	13^{0}	13^{6}	14^{0}	14^{6}	15^{0}	15^{6}	16^{0}	16^{6}	17^{0}	17^{6}	18^{0}
4a. Paragraph Meaning			52	50	47 45	51	42 41 15	48 33	49 46 40 38 34 27 25 24 19	44 43 39 37 36 31 30 29 26 20 18 14	35 23 21	28 16 13 12 10 7 4	22 18 5	33 11 9 8 2	6	3		1
4b. Sentence Meaning		51		52 38	48	46	50 47 21 19 13	49 44 36 30 29 18 17	45 39 37 25 15	42 41	43 40 31 28	35 34 4	33 27 26 24 20 16 14	23 12 9 7 5	6 2 1	10 8	22 11 3	
4c. Word Meaning					52 51 46	47	49 48 45 38 37 13		50 43 31 30 25 21	44 42 41 40 39 36 35 32 29 28 20 19 16	34 27 24 17	26 23 22 15	33 18 14 11	10 9 4	12 7 6 2	3	8 5	1
4d. Total, Reading				52 51		50 48 47 38	46 45	49	44 42 41 37 36 30 29 25 21 19 15 13	43 40 39 35 31 17	34 33 28 27 26 24 20 18 16	32 23 14	12 4	22 10 9 7 5	11 8 6 2		3 1	

4e. Arithmetic Computation

10^{6}	11^{0}	11^{6}	12^{0}	12^{6}	13^{0}	13^{6}	14^{0}	14^{6}	15^{0}	15^{6}	16^{0}	16^{6}	17^{0}	17^{6}	18^{0}	18^{6}	19^{0}	19^{6}
47 39	51 46 41	53 50 49 44 42 35 34 20	48 43 40 32 31 28 26 11	30 27 25 24 23 22 9 8		38 29 14	45	37 33 21 19 18 17 16 15 12	10	36 1	7 6 3	5 13		4 2				

4f. Arithmetic Reasoning

10^{6}	11^{0}	11^{6}	12^{0}	12^{6}	13^{0}	13^{6}	14^{0}	14^{6}	15^{0}	15^{6}	16^{0}	16^{6}	17^{0}	17^{6}	18^{0}	18^{6}	19^{0}	19^{6}
		50 49	51 46 44 39 33	40	42 41 35 28 23 18	48 47 45 43 36 22	53 37 32 31 30 29 20 19 17 14 12 11	34 27 26 25 24 21 16 15 13 10 8 7	5	9 6	19	4 3 2						1

4g. Total, Arithmetic

10^{6}	11^{0}	11^{6}	12^{0}	12^{6}	13^{0}	13^{6}	14^{0}	14^{6}	15^{0}	15^{6}	16^{0}	16^{6}	17^{0}	17^{6}
		51 50 49 47 46 39	44 42 41 40 35	52 48 43 28 20	34 32 31 23 22 11	45 38 33 30 29 26 25	37 26 24 18 17 14 8	36 21 16 15 12 9	19 10	13 7	6 5 3		4 2	1

4h. Nature Study and Science

9^{6}	10^{0}	10^{6}	11^{0}	11^{6}	12^{0}	12^{6}	13^{0}	13^{6}	14^{0}	14^{6}	15^{0}	15^{6}	16^{0}	16^{6}	17^{0}	17^{6}
52	36	48 47 42	46 45 43 38	51 50 49 34 32 31	44 40 12	41 37 35 33 23 22 18 16 15 10	25 24 21 17	29 28 27 19 13 6	39 30 26 20 14 5 4	9 7 3 2	11	8			1	

4i. History and Literature

9^{6}	10^{0}	10^{6}	11^{0}	11^{6}	12^{0}	12^{6}	13^{0}	13^{6}	14^{0}	14^{6}	15^{0}	15^{6}	16^{0}	16^{6}	17^{0}	17^{6}
51			52		48	45	50 49 41 36 28 27 25 22	47 43 38 35 26	46 39 37 33 32 31 30 24 21	44 42 40 34 19 18 15	11	29 20 17 13 10	23 16 14 9 8	12 7 6 4 2	5 3	1

4j. Language Usage

10^{0}	10^{6}	11^{0}	11^{6}	12^{0}	12^{6}	13^{0}	13^{6}	14^{0}	14^{6}	15^{0}	15^{6}	16^{0}	16^{6}	17^{0}	17^{6}	18^{0}	18^{6}	19^{0}	19^{6}	20^{0}
45	52 42	51 21	46 43		41 30	40 37 30 26	50 47 36 25 16 7	49 24 23 19 14 10	48 39 38 35 20	29 28 17 15 9 3	44 27 22 12 8 6 5 4	33 32 13 11	31 18	2		1				

4k. Spelling

10^{0}	10^{6}	11^{0}	11^{6}	12^{0}	12^{6}	13^{0}	13^{6}	14^{0}	14^{6}	15^{0}	15^{6}	16^{0}	16^{6}	17^{0}	17^{6}	18^{0}	18^{6}	19^{0}	19^{6}	20^{0}
	44	52 43 40	49	37	42 41	51 50 48 45 39 33	46 32 27 23	47 35 34 29 26 22	38 24 16		36 31 30 20 19 18 14	15 8	21 17 13 12 11 6	28 9	25 10 5 3 2	7 4				1

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2. The median educational age is fourteen years, one month. Comparison of the age and grade standards given in the Manual indicates that, according to the data on which these tests were standardized, fourteen years and one month corresponds to a VII-B grade. This is a year and a half higher in general than the present grading of the children.

3. There is a general tendency for a child to stand considerably higher in the Stanford Achievement Test than his grade-status would indicate. The grade-status had been determined on the basis of a considerable number of educational tests which had been given monthly during the past year. In a good many cases these educational tests had indicated grades very much higher than those from which the pupils came. The committee had been very conservative in its changes. One general principle had been that a child whose facility in an important tool subject was low, should be labelled with a correspondingly low grade-status. The Stanford Achievement level is, however, an *average* of all the subjects, and might still be high for a child who was low in one important subject. This difference, in the main, accounts for the generally higher level of achievement on the Stanford test.

4. More than one-third of all the ratings in all subjects taken together are first-year high school or better. Since only one child makes this rating in all subjects, and only three make it in eight of the nine subjects, this means that *more* than one-third of the group made a high-school rating in a majority of their tests—say in six or seven on the nine (see Table I).

5. There is a general tendency for the standing in those tests which are largely dependent on language to be higher than the standing in the tests in arithmetical and scientific material. Since these children had been in school on the average certainly less than four years, and now make grade standings which are from one to three years higher than the fourth grade, it is obvious that a great deal of their education has been obtained outside of the schoolroom. It is fairly obvious, also, that it is much easier for a child to teach himself to read and to practice reading than it is for him to teach himself arithmetic and to practice arithmetical processes. Moreover, the reading matter which is easily available to children

up to the ages of nine and ten contains a great deal more information in the fields of history and literature than it does in the fields of science and mathematics. This general tendency which is made apparent by the higher medians in the language subjects is, then, one which is quite readily comprehensible in terms of the description of the group under consideration.

6. There is a general tendency for a child's educational age on the Stanford Achievement Test (average 14 years, 1 month) to be slightly lower than his mental age as indicated by the Stanford-Binet Test, (average 14 years, 5½ months). Most of the other studies of accomplishment show that gifted children under ordinary conditions are not working up to their ability. It is to be expected that under the present type of grouping and training this should, in general, gradually cease to be true.

The distribution of accomplishment quotients to be given later indicates that the group is at present almost up to average in this respect. A study of the Stanford Achievement test results on similarly gifted children who had remained in regular classrooms would be necessary in order to determine what part the present treatment had played in bringing about this relatively high accomplishment level. It is hoped to make this study during the current year.

It is interesting to note some of the unusual performances of individual children. A great deal of specialization of performance is evident. For instance, a child may make fourth-grade standing (which is as low as any child fell in any subject) in spelling and a high-school standing in language usage, or a fourth-grade standing in science and a high-school standing in arithmetical computation, or a fifth-grade standing in arithmetical computation and a high-school standing in spelling, etc. On the other hand, some individuals, such as Nos. 1, 2, and 3 at the upper end of the distribution, and Nos. 48 and 51 at the lower end of the distribution, are relatively more even in their performances. When all the facts concerning a child are known, more unusual items are often easily interpreted. For instance, No. 29, whose mental age is given as 12-2, has undoubtedly a higher mental level than this. His I.Q. on the Stanford-Binet Test has varied from 133 to 160, and the mental

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age here given is that corresponding to the first and lower record. Much other evidence, however, points to the fact that this record was unduly low. The boy is half French, and at the time of the first test had recently returned to this country after living for some time in France. No language difficulty was obvious in the giving of the test, but it is hardly to be doubted that the resulting score is misleading.

The oldest child in the group, No. 16, is apparently not working up to his capacity, since his mental age is much higher than that of nine or ten children who do better than he does. In his case, however, the two Stanford tests agree in giving him an I.Q. which is over 150 and under 160. His general attitude in the classroom has been characterized as 'lazy.' The youngest child chronologically, No. 28, is also next to the lowest mentally, but makes a better record than half a dozen children of higher chronological and mental age. His I.Q. is, however, 167, or possibly 175. Another child whose achievement is conspicuously above his mental level is No. 25. There is in this case no obvious explanation; classroom observation shows him consistently good, with a particular aptitude for spelling, whereas repeated intelligence tests, while giving him a slightly higher rating, do not indicate a mental ability which would account for his achievement. Individuals No. 4 and No. 12 are similar in these respects to No. 25.

Table V is a correlation table between mental and educational ages. The Pearson coefficient of correlation is + 0.80. This is attenuated by the narrow range of our group. Correction according to the Otis[2] formula, to make this comparable to a complete age group, brings the figure up to + 0.90.

Direct comparison of the intelligence quotients and the educational quotients is made in Table VI. The median I.Q. for the whole group is 152; the median educational quotient is 146. A corresponding difference is apparent when the two rooms involved are considered separately, the groups appearing in Table VII.

Accomplishment quotients have been figured in order to compare our data with those of other studies (Table VIII). The

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[2] *Jour. of Educ. Psych.*, May, 1922.

TABLE V. — CORRELATION OF STANFORD ACHIEVEMENT EDUCATIONAL AGES WITH STANFORD-BINET MENTAL AGES
($\text{Pearson } r = +0.80$)

Stanford-Binet M.A. 19-6								
19-3 19-0 18-9 18-6								1
18-3 18-0 17-9 17-6								
17-3 17-0 16-9 16-6					10	5	2	
16-3 16-0 15-9 15-6				26 27 24 16 17 18	11 8 13 9	3 7 6		
15-3 15-0 14-9 14-6			36	31 15 21 32 23 20	14	4		
14-3 14-0 13-9 13-6	53	46	45 39 43 37 34	22 19 33 30 28	12			
13-3 13-0 12-9 12-6	51	49 50 47	42 44 38 35 41 40	25				
12-3 12-0		48		29				
	11^{3} 11^{6}	11^{9} 12^{0} 12^{3} 12^{6}	12^{9} 13^{0} 13^{3} 13^{6}	13^{9} 14^{0} 14^{3} 14^{6}	14^{9} 15^{0} 15^{3} 15^{6}	15^{9} 16^{0} 16^{3} 16^{6}	16^{9} 17^{0} 17^{3} 17^{6}	17^{9} 18^{0}

Standard Achievement Educational Age

TABLE VI.—DISTRIBUTION OF FIFTY-TWO GIFTED PUPILS BY INTELLIGENCE QUOTIENT AND BY EDUCATIONAL QUOTIENT

Intelligence Quotient (Stanford-Binet)	Q	Educational Quotient (Stanford Achievement)
1	190	
	185	
	180	
	175	1
36 13 10 8 2	170	2 48
48 30 3	165	3 4 8 13 30
38 27 22 20 11 9	160	9 20 25
28 24 7 5 4	155	7 22 28
52 44 33 32 23 18 17 16 6	150	5 6 10 11 12 29
42 34 31 25 21 15 12	145	23 26 32 33 34 35 36 44
51 49 47 46 45 39 35 14	140	14 15 17 18 21 27 38 42
50 43 41 40 26 37 19	135	16 19 24 31 40
29	130	37 39 41 43 46 47 49 50
	125	45
	120	51 52

Median I. Q. 152

Median E. Q. 146

TABLE VII

	I. Q.	E. Q.	A. Q.
Whole group......	152	146	97
Room 1..........	160	155	97.5
Room 2..........	141	137	97

TABLE VIII.—DISTRIBUTION OF FIFTY-TWO GIFTED PUPILS BY ACCOMPLISHMENT QUOTIENTS (STANFORD ACHIEVEMENT TEST)

78	52
80	
82	
84	
86	24 26 27 51
88	10 45
90	16 36
92	1 17 18 39 49
94	11 31 43 46 50
96	2 5 15 21 23 22 37 44 47
98	8 13 20 32 30 33 34 42
100	3 6 7 9 14 41
102	19 28 38 40 48
104	35
106	4 12
108	25
110	
112	
114	29

average accomplishment quotient is 97, and neither of the rooms varies from this more than half a point. This is slightly below the achievement quotient of an ordinary class group, but apparently a good deal higher than that of similarly gifted individuals scattered through ordinary class groups. In the study made by Miss Coy[8] in Columbus, Ohio, of children segregated in high fourth and low fifth grade, the accomplishment quotients, after work was well under way, averaged 92. Three semesters later it was 97. These children were of approximately the same chronological ages as our group, but of lower mental ages by two years (average mental age, 12.6). The intelligence quotients were correspondingly lower, approximately 128 on the average as compared with 152 in our group.

We have also the possibility, through the generosity of Dr. Terman in furnishing us with unpublished data, of comparing the achievement of our children in the reading, arithmetic, language, and spelling tests with that of the California group of gifted children. His figures are grouped by chronological ages, and our data have been correspondingly grouped for comparison. Table IX shows this. It will be seen that the subject achievement quotients of our group are higher than those of the California group, except in the case of the language usage tests of the nine- and ten-year-old children, and the reading of the ten-year-olds. The subject quotients appearing in this table are somewhat higher than our general

TABLE IX.—SUBJECT QUOTIENTS OF SPECIAL OPPORTUNITY CLASS, NEW YORK, COMPARED WITH CALIFORNIA GIFTED CHILDREN OF SAME AGES

Chron. Age	Subject Quotients							
	Reading		Arithmetic		Language Usage		Spelling	
	N. Y.	Cal.	N. Y.	Cal.	N. Y.	Cal.	N. Y.	Cal.
8-0 to 8-11......... No. of cases.........	161 (6)	151 (66)	151 (6)	141 (70)	168 (6)	162 (66)	175 (6)	136 (66)
9-0 to 9-11......... No. of cases.........	151 (29)	151 (92)	142 (29)	139 (91)	147 (29)	156 (91)	150 (29)	134 (92)
10-0 to 10-11......... No. of cases.........	145 (16)	146 (114)	141 (16)	140 (114)	144 (16)	148 (112)	153 (16)	132 (113)

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[8] Coy, Genevieve. *The Interests, Abilities, and Achievements of a Special Class for Gifted Children.* Teachers College Contributions to Education, No. 131.

accomplishment quotients previously mentioned, because in this table one of the lowest tests, science and nature study, does not appear, since Dr. Terman did not have comparable material on this test.

The data reported undoubtedly raise more questions than they answer—many questions in regard to adaptation of curriculum and methods for a group of this type, questions of the relation between I.Q. and potential educational achievement, questions of motivation, questions of the reliability and validity of both educational and intelligence tests in the upper ranges of ability. The committee, in co-operation with the Institute of Educational Research of Teachers College, is attempting by further work to come nearer to answering such questions than is at present possible.

C4. A COMPARISON OF SELECTED GROUPS WITH MIXED CLASSES

J. R. Benson
Principal of the Eliot School, St. Louis, Missouri

How can we provide for the employment of the full powers of all children while recognizing that natural endowments are unequally distributed? A partial solution for this problem is being worked out in the Eliot School in St. Louis.

All pupils are given the Stanford Revision of the Binet-Simon test before they complete the kindergarten course. On the basis of the results obtained we form three classes with numbers approximately equal at the time of entering the first grade. We think of these classes as bright, ordinary, and dull. The ordinary class is expected to complete the course outlined for each year without loss of time, keeping well above the minimal requirements. The class of dull pupils must be allowed more time. In a school of eight hundred pupils it is not always possible to keep the groups intact. Pupils remove and others are received. When there are too few in a class it must be combined with others.

We have been able to keep the bright children in separate classes, however, since the plan was inaugurated two years ago. Newcomers who seem possessed of the requisite qualifications are tested before being assigned to such a class. An I. Q. of 110 is desired, but we sometimes admit a pupil of lesser ability, if he does work equal to the class median in amount and kind. In chronological age we try to avoid a spread of more than six months from the median. Thus we have a homogeneous group. We plan that they shall do the prescribed work very well. They should also finish the course prescribed for eight years in less time. Since many children plan to obtain employment at fourteen years, it is a distinct advantage if they can be graduated young enough to begin their high-school course (there is no junior high school in this neighborhood) before the law permits them to work. Our first class completed the third grade at the end of the second year.

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Supplemental work offers a means of keeping the child's powers exercised. Individual assignments are used for the children who are ablest and most alert. Group projects also are found to be valuable because affording possibilities of socializing children and of provision for initiative.

Thus we have three ideals in mind in dealing with these bright children: completion of the required course in less than the allotted time; engaging the energies and interest of the child steadily and without skipping part of the course; and the accomplishment of additional work with consequent gain. It should be stated that no facilities of any kind have been provided here beyond those furnished other elementary schools. We have an ordinary school building, the usual equipment, teachers assigned for the regular work—in fact, some of the teachers are virtually beginners.

THE FIRST GIFTED GROUP

The first bright class began the first-grade work in September, 1921. In September of the present school year they were classified as in the first quarter of the fourth grade. In October tests were made in order to compare them with other pupils in the same school who have been treated differently. In Table I, the bright class (called Selected Group One) is compared with a class taught by the same teacher, in the same room, and also classified as fourth grade, first quarter.

While all members of the selected group have taken the Binet test, only part of the members of the other class have been so tested. The National Intelligence Test Scale A, Form I, was given to all in order that there might be a basis of comparison. The Thorndike-McCall Reading Scale, Form I, shows "T" scores. Buckingham's Extension of the Ayres Spelling Scale signifies the use of 103 words from Column Q. In arithmetic the Woody-McCall Mixed Fundamentals, Form I, and the Buckingham Reasoning Scale, First Division, Form I, were used.

Table I is interpreted as follows. A member of the Selected Group One having an I. Q. according to the National Test of 175 and a chronological age of 8 years and 3 months has a score of 47 on the Thorndike-McCall Reading Test, 24 on the Buckingham

Reasoning Test, and 13 on the Woody-McCall Mixed Fundamentals. (The Binet I.Q. of each pupil of Selected Group One is not given.) The range (with the exception of one studious girl whose age makes it possible for her to keep pace with the class in spite of her score of

Table I.—Comparison of Selected and Unselected Group

	I. Q.	Chron. Age Yr.	Chron. Age Mo.	Thorndike-McCall Rdg.	Ayres Spelling	Buckingham Reasoning	Woody-McCall Mixed Fund.
Selected Group One							
	175	8	3	47	24	41	13
	175	8	1	43	32	35	16
	159	8	6	36	2	48	14
	151	8	10	37	4	38	16
	141	8	3	45	18	33	14
	139	7	10	41	37	41	15
	137	7	10	45	64	35	13
	137	8	4	47	45	39	14
	131	9	0	37	13	27	17
	131	9	0	45	54	45	13
	131	8	8	38	20	27	10
	126	8	8	45	12	35	11
	121	8	2	34	11	36	15
	119	8	1	35	37	38	16
	116	8	2	34	10	33	10
	110	8	11	38	15	30	13
	109	8	11	43	9	33	8
	106	9	0	41	16	33	7
Median	131	8	5	41	17	35	13.5
Unselected Group in Same Room with same School Classification (Fourth Grade, First Quarter)							
	121	8	9	45	41	38	12
	120	8	9	40	28	48	11
	117	7	11	43	6	39	12
	117	9	8	51	35	30	12
	115	9	10	38	22	42	4
	115	9	4	36	38	38	10
	114	9	6	36	13	32	12
	114	9	10	35	16	45	9
	113	9	8	35	15	36	13
	112	9	8	49	26	41	15
	112	8	10	38	5	36	7
	109	9	8	32	3	36	6
	107	10	1	35	13	33	14
	107	9	3	43	36	36	10
	106	9	3	37	4	39	7
	102	9	1	47	14	30	8
	96	8	9	38	8	30	10
	94	10	1	43	5	36	12
	94	10	4	38	7	30	11
	93	9	9	30	4	38	10
	91	9	10	35	8	42	17
	89	9	0	38	37	33	15
	88	9	8	35	6	36	9
	87	10	7	28	12	45	7
	87	9	10	28	14	35	9
	80	10	7	35	16	42	7
	78	11	5	30	11	33	10
	75	11	5	29	5	0	7
	*	12	2	30	6	0	8
Median	106	9	8	36	13	36	10

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100) is from 104 to 137, the median of all being 115. The pupil starred in the Unselected Group made a score too low to be used. All tests were given by the principal, except the Binet, which is in the hands of the kindergarten director.

The superiority of the Selected Group is clearly shown. Only in the Buckingham Reasoning Test does the Unselected Group surpass the Selected. It is also noticeable that in general the scores in both groups bear a definite relation to the I. Q. indicated.

Table II compares the number of days the pupils of these two classes have been in school. Those in the Selected Group have a possible attendance of 400. Those exceeding this number were not in the class at the beginning, but were added as they were found to be suited to the rate of learning maintained. The last columns of this table are made up from the records of pupils in this school who are comparable to the Selected Group both in age and attendance, no account being taken of their mental ability. It will be seen that no pupil is included unless his age and attendance both fall within the limits of the group with which he is compared. Based on age and school attendance, then, it is apparent that while the members of the Selected Group have reached the fourth grade, one pupil of those listed in the last columns is still in the first, 19 are in the second, 22 are in the third, 7 are in the fourth, one in the fifth.

A Second Gifted Group

In addition to the fourth-grade class which we have been comparing, there is a class which entered the first grade in September, 1922. This group has been depleted by transfer until at the present time it numbers but thirteen. In September of this school year it was ready for the third quarter of the second grade, having completed the assignments for a year and a half in one year's time. In Table III these pupils are compared with those of another class having the same school rating, who have been treated as individuals in the usual administrative way.

All pupils in both classes have taken the Stanford Revision of the Binet test. The I. Q. is indicated in the first column. At least one pupil of the Unselected Group will be assigned eventually to the class of bright pupils—Selected Group Two. The chronological

TABLE II.—COMPARISON OF SELECTED AND UNSELECTED GROUP IN ATTENDANCE

	Selected Group One Total Days in School		Unselected Group Same Room		From Entire School Days	Grade	Age	
	486		829		380	First	8	4
	460		739		295	Second	7	10
	440		730		296	"	7	10
	394		675		385	"	8	1
	390		594		364	"	8	2
	389		584		345	"	8	2
	386		584		349	"	8	2
	383		571		392	"	8	3
	382		561		374	"	8	3
	376		554		387	"	8	3
	375		552		378	"	8	4
	366		539		361	"	8	4
	365		537		320	"	8	5
	357		531		386	"	8	5
	350		520		332	"	8	6
	330		519		385	"	8	6
	320		500		382	"	8	6
	298		500		306	"	8	7
	292		487		437	"	8	9
			480		339	"	8	10
Arith. Mean	376		479		381	Third	8	0
Median	376		477		380	"	8	1
			450		360	"	8	1
			393		365	"	8	2
			382		391	"	8	2
			378		381-	"	8	3
			344		371	"	8	4
			343		363	"	8	4
			336		324	"	8	5
					343	"	8	5
		Arith. Mean	523		326	"	8	5
		Median	520		358	"	8	6
					424	"	8	6
					390	"	8	6
					376	"	8	6
					384	"	8	8
					397	"	8	9
					343	"	8	10
					381	"	8	10
					457	"	8	10
					383	"	8	10
					388	"	9	0
					382	Fourth	8	0
					470	"	8	10
					450	"	8	10
					385	"	8	10
					486	"	8	10
					476	"	8	10
					478	"	9	0
					465	Fifth	8	11
				Arith. Mean	381	Median	8	2.5
				Median	386			

age is indicated in the second column. It will be noted that the members of Selected Group Two are almost a year younger than the others. In the third column is shown the results of a test. Pressey's Second Grade Attainment Scale, Form A, was used.

It will be noted that the Unselected Group secures higher scores. We need not be surprised, however, if we make a comparison of the ages of the two groups. The difference in the time which the mem-

P IN ATTENDANCE

VS	Grade	Age	
0	First	8	4
5	Second	7	10
6	"	7	10
85	"	8	1
4	"	8	2
45	"	8	2
49	"	8	2
92	"	8	3
74	"	8	3
87	"	8	3
78	"	8	4
1	"	8	4
20	"	8	5
86	"	8	5
32	"	8	6
85	"	8	6
82	"	8	6
06	"	8	7
37	"	8	9
39	"	8	10
81	Third	8	0
89	"	8	1
60	"	8	1
65	"	8	2
91	"	3	2
81	"	8	3
471	"	8	4
363	"	8	4
324	"	8	5
343	"	8	5
326	"	8	5
358	"	8	6
424	"	8	6
390	"	8	6
376	"	8	6
384	"	8	8
397	"	8	9
343	"	8	10
381	"	8	10
457	"	8	10
383	"	8	10
388	"	9	0
382	Fourth	8	0
479	"	8	10
450	"	8	10
385	"	8	10
486	"	8	10
476	"	8	10
478	"	9	0
465	Fifth	8	11
381	Median	8	2.5
386			

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TABLE III.—COMPARISON OF SELECTED GROUP TWO AND AN UNSELECTED GROUP

	Selected Group Two					Unselected Group			
	Binet I. Q.	Age (Chron.) Yr.	Mo.	Pressey Score		Binet I. Q.	Age (Chron.) Yr.	Mo.	Pressey Score
	133	7	3	53		112	8	..	77
	128	6	11	30		111	8	3	66
	125	7	1	57		111	8	4	40
	123	7	3	54		109	8	7	37
	121	7	6	59		107	8	2	65
	115	7	1	20		107	8	6	37
	114	7	11	48		104	8	2	54
	111	8	1	39		103	8	5	54
	110	7	9	35		95	8	7	51
	104	8	1	58		90	8	6	51
	102	7	11	35		89	8	8	61
	100	7	1	35		85	9	3	37
	100	7	10	33		84	9	7	47
						82	9	3	50
							8		
Median	114	7	6	48	Median	103.5	8	5	51

bers of the contrasting groups spent in school is still more apparent from Table IV. The number of days is counted from the entry of each child in the first grade, and no account is taken of attendance in the kindergarten.

TABLE IV.—COMPARISON OF SELECTED GROUP TWO AND AN UNSELECTED GROUP IN DAYS OF ATTENDANCE*

	Selected Group Two		Unselected Group
			574
	298		387
	289		386
	257		386
	196		385
	187		382
	184		378
	182		364
	178		362
	177		345
	176		332
	163		312
	152		284
	141		260
Average	198	Average	3[illegible]7

*The members of the Selected Group having been in school but one year, only 200 days' attendance is possible for them, with the exception of three pupils who joined the class during the term.

SUMMARY

A classification is made at the beginning of each year of all pupils at the time of entry into first grade. Those having an I. Q. of 110 or more are placed in a class by themselves. Only those who fail are removed from the class, while newcomers of ability are enrolled therein, provided they are within six months of the chronological age median.

Three ideals are held in view in dealing with these gifted children: (1) completion of the elementary-school course in less than eight years; (2) the mastery of an enriched course as preferable to hurrying the pupil into classes with older children by double promotion; (3) employment of the full powers of each pupil by putting him in competition with his intellectual equals only.

The number of children involved in the project at the Eliot School will hardly warrant general statements. Certain tentative conclusions, however, may be permitted.

1. In both groups of bright children time has been saved. Each group has advanced at the rate of three grades in two years. No part of the assignments has been omitted, however.

2. Supplemental work has been completed beyond that usually done.

3. It is our conviction that pupils have worked more steadily and have found more pleasure in their occupations because of the competition with others of equal ability.

4. Tests show that the pupils who have advanced rapidly as a class have secured higher scores than older pupils having the same school seating who have spent more time in school. While the second-grade selected group fell somewhat short of the showing of the unselected group, the difference is more than accounted for by the longer time the latter have spent in school.

5. A comparison of age and attendance records shows that most Eliot School pupils comparable to the Selected Group One are to be found (without consideration of ability) in the second and third grades. Apparently a considerable portion of the Selected Group would have been so rated except for the formation of a separate class.

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D. COMPARISON OF ATTAINMENTS OF GIFTED CHILDREN IN SPECIAL CLASSES WITH GIFTED CHILDREN IN ORDINARY CLASSES

D1. COMPARISON OF CLASS RATINGS OF PUPILS IN SPECIAL ADVANCED CLASSES WITH ACCELERATED PUPILS IN REGULAR CLASSES IN THE DETROIT PUBLIC SCHOOLS

ANNA M. ENGEL
Assistant Supervisor of Special Education, Detroit, Michigan

As stated elsewhere in this *Yearbook*, prior to the present system of X-Y-Z sectioning, there had been in operation at Detroit segregated classes for gifted pupils in the higher grades. The first of these Special Advanced Classes was established in 1915. Later, two more centers were established. The pupils of the first class were selected by the principals as bright, but it was soon realized that many of them were unable to do the work of the class. Accordingly, in 1917, a series of educational tests was used for the selection, but in 1918 the principals again recommended certain children because they felt the tests had not chosen their brightest pupils. At this time a Stanford-Binet examination, given by the Psychological Clinic, showed that it would have been better to have kept fifty percent of these children in the regular grades. Only thirty-eight of the seventy-seven pupils had I.Q.'s above 120. In June 1919, the practice of using group intelligence tests for selection was begun, and this was continued until September 1922, when the entire department was transferred to the intermediate school.

Recently, at the request of the Director of the Psychological Clinic, a comprehensive statistical study of the pupils in these Special Advanced classes was undertaken by the writer. Portions of this report have been referred to at other points in this volume. There will be presented here a summary of one section of the report which was made in order to determine whether the special training had carried over into the high-school work sufficiently to affect the class ratings. For this purpose, the ratings of 139 graduates from the Special Advanced Classes were compared with the ratings of 127 control pupils who had not entered the Special Advanced Classes, but who were assumed to be exceptionally bright because they had graduated from the high school before their seventeenth birthday.

The small number of cases in many of the subjects makes an adequate comparison impossible. The Special Advanced Group did better in Algebra II than the Control Group. This is probably due to the fact that the Special Group had more intensive training over a longer period of time (they were given a year of algebra before high-school entry.) The Control Group does about as well or better after the first term's work.

The Special Group also had a year of first-year Latin and began Latin II upon entry into the high school. They showed a superiority over the Control Group the first term, but it is not consistently sustained in succeeding classes. The small number of pupils in the Control Group in Latin classes, however, makes comparisons difficult. The Control Group was more often enrolled in French and German classes and the Special Advanced in Latin and Spanish classes. Possibly it would be just as well if Latin and algebra were deferred until the pupils entered the high school and the extra time be devoted to trips and observation lessons.

A general superiority was noticeable in English, however. True enrichment, apparently, was made along the lines of oral expression, reading, literature, and written compositions. Seemingly, these pupils benefited by the intensive training given them in oral expression through debates, parliamentary procedure, extemporaneous discussions, and the dramatization of plays, and in the use of references and indices; also in written expression through the writing of class yearbooks, school magazines, and book reports, and in the definite requirements for lecture notes, lesson outlines, and oral reports.

Most persons have to learn through a trial and error process how to study effectively, how to make outlines, and how to take lecture notes. It would seem worth while to teach the technique of these things to these brighter pupils and put them in possession of tools which will prove more valuable than any sets of facts available. Only a few of the group took typewriting, yet the majority of these gifted children planned a college career. It would seem wise to urge them to provide themselves with all the necessary tools to make their later work more effective. Poorly arranged and poorly written papers have probably often brought a much lower school mark than the content warranted. Typewriting, phonography, etc., would prove a help to any college student.

STUDENTS' OPINIONS REGARDING SEGREGATION

An attempt was made to compare the attitude of Special Advanced graduates with the attitude of the Control Group regarding the segregation of brighter pupils. A questionnaire was sent out. Twenty-nine former Special Advanced pupils and 72 of the Control Group returned their papers. Of the Control Group 65 percent believed they could have done better work if the pupils of the Control Group had been divided into slow and fast divisions. Of the Special Group, 86 percent were convinced that they were benefited by segregation.

Many advantages were mentioned by the special students, which may be roughly tabulated as follows: (a) acceleration, 55 percent; (b) enrichment, 11 percent; (c) better conditions because children were of equal ability, 8 percent.

Some of the typical answers are worth quoting; "Learned more in less time;" "Learned the correct way to study;" "Learned that I had to study, and how to do it;" "Got along faster, and learned more."

The greater number were interested in "speeding up." This attitude was duplicated by 214 pupils, who were enrolled in the Special Advanced Classes when this questionnaire was being sent in by the graduates. There were 48 percent who preferred a Special Advanced Class to a regular grade because of the high-school credits they earned in algebra and Latin. The reasons given by these eleven- and twelve-year-old pupils for their preference of a special class are very interesting: "It lets the 'drags' in the regular grades hold back nobody but themselves;" "It brings out your mental caliber;" "You are not held back by pupils that cannot learn;" "You go into details more, it's more fun;" "Something else to do besides running errands for teachers."

In the questionnaires sent to the graduates, they were asked to give, if they could, the disadvantages of attending a Special Advanced Class. Of the 29 Special students, all but five said there were no disadvantages. The other five said: "It shortened my high-school course and resulted in complications for entering the medical school;" "One graduates too young and later regrets it;" "Separation from former classmates;" "Breaking away from the old bonds of friendship and becoming used to a new routine."

Some of these criticisms are justified, in a measure. Many of the children came long distances on the car, out of their own neighborhoods, and away from their friends. They received extra credits in the Special Class. When they were graduated into the high school, they entered the one nearest their home, where they were ahead of the boys and girls with whom they used to go to school. It would seem that an arrangement which would care for these brighter pupils in their own schools would be of great advantage. It would prove less expensive to the parent, present less strain on the physical and mental health of the child, and would continue the neighborhood school friendships.

All but two of these special graduates would advise others to enter the advanced classes because then they could go faster, go more deeply into the subject, and be with pupils of equal ability. Those who would not advise others to enter a class for gifted children gave no definite reason except that "the advantages are not as great as the disadvantages."

It is significant that 90 percent of those in the Control Group would advise others to enter a special class for gifted children, although they themselves had never been enrolled in one. They gave as their reasons: (a) the opportunity for acceleration; (b) enrichment; (c) working with pupils of equal capacities; (d) having to work to their greatest ability.

The small percent in the Control Group who did not favor segregating according to ability thought the school work might not

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be done so thoroughly because of the extra subjects carried; also, that jealousy might result among the other students not entered in the class. However, from the high-school records of the Special graduates, it can be inferred that, although Latin and algebra were given beside the regular school subjects, the work must have been well done, since the Special students did so well in the high school. It is doubtful, too, if any jealousy resulted, since the tests were not given by the school but by the Psychological Clinic, and everyone had an equal chance in the competition. The effect of class rivalry is not to be compared to pupil stimulation which results when a child finds himself in a group with abilities equal to his own, where he must work as he never did before to hold a position at the head of the class.

One of the questions asked both the graduates of the Special Advanced Class and those of the Control Group was: “In school, were you generally made to work to your greatest capacity?” Of the Special Group 82 percent, and of the Control Group 83 percent said: “No.” Most of the others said: “Sometimes;” “Not generally;” “We were urged to do our best;” etc. They were also asked to tell in what specific grades they had to work the hardest, and the possible reason for this. Very few pupils mentioned an elementary grade. It was only in the high school that they encountered difficulties. Of course, it must be remembered that the number of special cases was so small that a comparison is of doubtful value. It seems, however, that the Special students had to work harder in the eighth grade than did the Control Group. Evidently the extra subjects of algebra and Latin account for this. In the ninth, tenth, and eleventh grades they were rather evenly matched, but in the twelfth grade, a much larger percent of the Control Group found that grade the most difficult of all.

32. A STUDY OF THE RESULTS OF HOMOGENEOUS GROUPING OF ABILITIES IN HIGH-SCHOOL CLASSES

R. R. Cook
Principal of Theodore Roosevelt High School, Des Moines, Iowa

One of the important problems engaging the attention of school supervisors during the past few years has been that of providing for individual differences in the ability of school children. Many attempts have been made, by modifying one phase or another of organization or method, to develop a higher degree of efficiency in dealing with the range of abilities that is found in the average school. In addition to segregating subnormal children in the elementary schools, some effort has been made, principally in the high schools, to simplify the problem of adapting instruction to the large variety of abilities, by organizing groups homogeneous with respect to ability.

The theories advanced by the advocates of this administrative device sound very plausible, but so far as we have been able to discover, no one has actually measured the results with a view to determining in a scientific manner the actual benefits derived.

It is claimed that pupils of ability above the average, if placed in separate classes, will be enabled to accomplish much more than when associated with mediocre and slow students because of greater stimulus to effort and keener competition. It is claimed, also, that under the old plan many pupils of exceptional ability have become intellectual loafers because they have never had the incentive to work up to capacity.

On the other hand, it is claimed that the child of less than average ability has not been given a fair opportunity in the intellectual race because he has been placed in competition with those who were greatly superior. The contrast has caused him to become discouraged. The pace which has been set for the class, being adjusted to the ability of the average child, has been too fast for him. Consequently, he has soon fallen hopelessly behind and has either become a drag on the class, or having become completely discouraged, has dropped out of school. If, however, he could have been placed

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in a class with others of about his own ability, he would have been able to keep up with the assignments, and to compete successfully with the remainder of the class. He might even have found an opportunity for intellectual leadership in his group.

These theories have all sounded very reasonable. In order to test them the writer has for the last two or three years tried separating the weaker and stronger students in those subjects having an enrollment large enough to justify such an arrangement. Some of the teachers on the faculty have reacted favorably to the plan, claiming that all groups were benefited by the arrangement. Others have been equally positive that the classified groups lost more than they gained. They insisted that there was a deadening uniformity of ability which, in the case of the stronger students took away the stimulus to leadership which they had formerly experienced; while in the case of the weaker students the lack of a spirited leadership, formerly furnished by the more brilliant ones, left the classes slow and uninteresting.

Since there is this conflict of opinions regarding the value of homogeneous groupings, this study has sought to determine by experimentation, under controlled conditions, (1) whether pupils in classes of more or less uniform ability obtain better results than those of the same ability in mixed groups, (2) if there is value in such a plan of grouping, which type of ability is most benefited, and (3) whether grouping according to ability may be of value in some subjects and not in others.

METHOD OF PROCEDURE

The experiment was conducted during the fall term of the school year 1921-22 in the Topeka High School, Topeka, Kansas. This is a high school of the cosmopolitan, four-year type, having an annual enrollment of about 1500 students. There are mid-year promotions from the elementary schools, causing a complete re-organization of classes every half year.

The subjects selected for the investigation were (1) English I, the first term's work in Freshman English; (2) English III, the first term of Sophomore English; (3) plane geometry, and (4) ancient history. These subjects were selected because they were among the few on the program that had six or more class sections each. They also offered opportunity to carry the investigation into three distinct departments, with two subjects in one of these departments, thereby permitting a comparison of two methods of classification. In each of these subjects three sections were assigned to each of two teachers, so that each teacher would have a strong section, a weak section, and a mixed section. The mixed section contained a variety of abilities. Table I shows a portion of the daily program of classes with the arrangement of classes used in this investigation.

TABLE I.—EXTRACT FROM RECITATION PROGRAM SHOWING ARRANGEMENT OF EXPERIMENTAL CLASSES

Teacher	8:45	9:50	11:00	12:05	1:45
Miss Stewart	Eng. 1 (a)	Eng. 1 (mx)			Eng. 1 (b)
Miss Bixler	Eng. 1 (b)	Eng. 1 (mx)			Eng. 1 (a)
Miss Ansel	Eng. 3 (b)	Eng. 3 (mx)			Eng. 3 (a)
Miss Tomson	Eng. 3 (a)	Eng. 3 (mx)			Eng. 3 (b)
Miss Hulse	Hist. 1 (a)	Hist. 1 (mx)	Hist. 1 (b)		
Mr. Hepworth	Hist. 1 (b)	Hist. 1 (mx)	Hist. 1 (a)		
Miss Austin		Geom. 1 (mx)	Geom. 1 (b)		Geom. 1 (a)
Miss Stewart		Geom. 1 (mx)	Geom. 1 (a)		Geom. 1 (b)

Section (a) of each subject is a strong section, Section (b) is a weak section, and Section (mx) is a mixed section containing pupils of all degrees of ability. The classes were placed on the daily program in such a manner that the strong section of one teacher came at the same period as the weak section of the other. The mixed sections of each came at the same period. The purpose of this arrangement was three-fold. First, it facilitated re-adjustment in case a pupil should have been assigned to the wrong class at the time of enrollment. Second, by having a strong and a weak class in the same period, the advantages or disadvantages of the time of day were neutralized in their effects upon results. Third, by assigning a class of each type to each of two teachers and then combining the results, different methods of teaching and differences in the ability to teach strong and weak pupils equally well were minimized. Furthermore, by having two teachers working in co-operation, the planning and scoring of tests were done together, thus overcoming

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ARRANGEMENT

05	1:45
	Eng. 1 (b)
	Eng. 1 (a)
	Eng. 3 (a)
	Eng. 3 (b)
	Geom. 1 (a)
	Geom. 1 (b)

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In placing these classes on the daily program, the mixed sections were always placed in the second period of the day, while the segregated sections were placed in the first, third, or fifth periods. The first three periods of the day are usually considered the best for student accomplishment, so at least one pair of segregated classes in each subject was placed in either the first or third, and the pair of mixed classes in the second period. The other pair of segregated classes was placed in either the third or fifth period, according to the requirements of other factors of the program. None of the classes was placed in the fourth period, as this period was a 'split' period of an hour and forty minutes, forty minutes of which was used for lunch. Half of the school went to lunch during the first forty minutes of the period, and half during the last forty minutes. This meant that the conditions of hunger and fatigue for some in that period would not be the same as for others.

METHOD OF CLASSIFYING PUPILS

The initial grouping of pupils was determined in two ways. In English 3 and in geometry all pupils who had been in the school the previous term were classified according to their grade for the previous term in the same subject or in the nearest related subject. That is, pupils in English 3 were classified on the basis of their term grades in English 2; pupils in geometry were classified according to their term grades in Algebra 2.

The school in which this investigation was conducted has a five-point grading system. The marks and their interpretations are as follows: A, excellent; B, good; C, medium; D, poor, or barely passing; NP, not passing. The faculty of the school has worked out a set of standards or definitions of grades which makes the grading standards of the different teachers in the school as nearly uniform as possible at present. Besides having a set of general standards for the whole school, each department has a set of requirements for each of the five marks, in terms of the course of study for each of the subjects in the department. This means that pupils coming together in a class of English 3, even though they may have had English 2 under several different teachers, will have been graded in English 2 on exactly the same standards.

In English 3 and in geometry, all pupils who made grades of A or B in the previous term's work, and who happened to be assigned to the period in which classes were organized on the basis of ability, were placed in Section (a). Pupils who made D or NP the previous term were placed in Section (b). Pupils who made a grade of C were assigned in equal numbers to the two sections. The question arose as to whether it would be better to organize three sections in the same period, placing the C, or medium, pupils in groups by themselves. This procedure might have created a situation somewhat more ideal in one respect for the study of the problem, but, since it seemed more desirable to have each of the co-operating teachers handle a strong section, a weak section, and a mixed section in order to facilitate assignment of pupils and to balance the factor of teaching methods, and since it was impossible to find enough subjects with nine sections on the daily program, it seemed best to proceed with the two-part division of abilities. Furthermore, it seemed reasonable to believe that, if there was any advantage to be gained by such division of abilities, this advantage would appear almost as strongly in classes containing only half the normal, or usual, spread of ability as in classes containing one-third of the distribution.

In the classes in English I and in ancient history, most of the pupils were new in the school. The English I classes consisted entirely of freshmen. Classes in ancient history consisted largely of freshmen. As it was impossible to obtain the marks in eighth-grade English and history for more than about 50 percent of these persons, it was decided to discard all attempts to classify them in advance on the basis of previous marks, and to base their classification entirely on mental test scores.

One week after the opening of the term, all pupils in the experimental classes were given the Terman Group Test of Mental Ability. This test was administered by the same person to all of the classes concerned, on the same day. He accomplished this by testing them in groups of two hundred, during three successive class periods, in a large study hall equipped with desks. Several of the co-operating

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teachers were present assisting in the distribution of blanks and in supervision. Pupils who were absent at the time the test was given were tested at a later date, but at the same time of the day, so that the conditions were as nearly the same as possible.

As soon as the mental tests were scored and the scores recorded on the record blanks, a careful survey was made of the results. Norms were derived for each subject and each pair of parallel classes. In the two freshman subjects in which it had been impossible to make a classification on the basis of previous grades, considerable re-adjustment had to be made. Those persons whose scores were above the middle 38 percent were placed in the (a) classes; those whose scores were below the middle 38 percent were placed in the (b) sections; those falling within the middle 38 percent were assigned about equally to the (a) and (b) sections. The middle 38 percent has been selected to represent pupils of medium ability in this division because, ideally, that quantity represents the percent of cases who should, under a normal distribution of grades in a five-point grading system with limits at 2.5 sigma, have received the medium grade.

In the classes in English 3 and in plane geometry, a few re-adjustments were made when it was found that the mental test score was high and the previous term's grade was low. This was done on the assumption that the pupil may have been a loafer with real ability, and that he needed the stimulus of contact with a class of superior ability in order to challenge his best effort. In cases where the mental test score was low and the pupil's previous grade was high, the pupil was allowed to remain in the high section, on the assumption that for some unknown reason, he may not have done justice to himself in the test. Furthermore, it seemed that positive ability in the subject, where such ability was known, ought to bear more weight than general mental ability in determining his classification. Pupils in the mixed classes were allowed to remain where assigned by chance, except in one case where it was found necessary to transfer a few from one mixed class to the other at the same hour in order better to balance the general distribution of ability in the two classes.

The mental test scores, in the cases of classes in English I and in ancient history, and the combination of mental test scores and previous grades in the cases of classes in English 3 and plane geometry, were made the bases of comparison of groups differing in ability throughout this study.

In planning this investigation, it was realized that the attitude of the teachers who conducted the experimental classes would be an important factor in determining the validity of the results, hence great care was taken in their selection. Teachers were chosen who had previously shown an interest in, and a scientific attitude toward, experimentation in their classes. Before the daily program of classes was finally arranged, each of the teachers selected for this work was called in and asked if he or she would be perfectly willing to co-operate in the investigation. All details were carefully explained. In each case a hearty response was given, indicating a real interest in the problem.

No attempt was made to formulate definite methods for conducting classes of unequal abilities. Each teacher was instructed to use such methods as he or she would ordinarily have used in dealing with pupils of unequal abilities in his classes, and to allow the strong students to cover as much supplementary material in connection with each lesson as practicable, whether in the (a) groups or the (mixed) groups. The question of methods effective with pupils of superior or inferior ability is an important one worthy of special study. It is the purpose of this study to measure merely the advantages or disadvantages that may come from selective grouping of pupils.

The attitude of the pupils toward an experiment of this kind was a factor that had to be considered. After consultation with the co-operating teachers, it was deemed wise to give as little publicity to the arrangement as possible. When the pupils were called together in large groups to take the mental tests, they were told that the office wanted a record of their general knowledge as indicated by the test questions, and that a large number of the pupils of the school were being similarly tested. The re-adjustment of pupils' classifications excited no special comment, as it has always been

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necessary to do some re-adjusting of classes at the beginning of each term. The pupils were not informed concerning the grouping plan in the classes to which they were assigned, and to them the tests given during the term were merely a routine part of the term's work. Thus, no pupil had occasion to feel either honored or disgraced by reason of his assignment to a group of superior or inferior ability. The general attitude of the classes was in no way affected by a feeling that they were being experimented with in order to establish records that would be used in a special way to determine administrative procedure.

Method of Testing Results

In order to compare the accomplishments of pupils in the selected and mixed classes, two methods of measurement were used: (1) special tests were devised and given at intervals during the term; (2) a comparison was made of the final term grades in these subjects.

In devising the tests in each subject, the two co-operating teachers worked together. They were given a few directions by the principal regarding the methods to be used in testing and scoring. They were urged to make the tests as objective as possible so as to reduce the personal element in scoring papers. The test questions were so formulated as to cover all the supplementary material that had been studied by the strongest pupils in the six classes. It was felt that this would cause the larger accomplishments of the stronger classes to appear when compared with the weaker classes and with the accomplishment of pupils of the same ability in the mixed classes, if such contrast existed. In English 3, geometry, and ancient history three special tests were given during the term. In English I, four tests were given. In each case the same test was given to all six of the classes in that subject on the same day. The two co-operating teachers in each subject planned the tests together and scored the papers together, after having weighted each possible answer to each question.

RESULTS

The record of each pupil in each of the experimental classes thus included four items:

(1) Grade in the subject for previous term, if such was available.
(2) Mental test score from the Terman Group Test.
(3) Scores of special tests in the subject, administered at intervals during the semester.
(4) Final term grade in the subject.

The tables of records of these pupils and the tables showing comparisons of average scores cannot be included in this paper because of lack of space. There were more than 600 persons in the classes used for this investigation and 495 whose scores were actually used in establishing conclusions. The first treatment of data was the elimination of the names and scores of all persons whose records were incomplete. This procedure left 495 cases. Next, the test scores of individuals of superior, mediocre, and inferior abilities, in (a), (b), or (Mx) classes were assembled in separate tables. The scores of each test were then totaled and averaged in each of these groups and the distribution of term grades tabulated. In the two subjects, English III and plane geometry, where grades of the previous term were available, a tabulation was made (1) of the number of persons who had increased their grades over those made during the previous term, (2) the number whose grades remained the same, and (3) the number who were given lower grades. The test averages of each group of pupils, the distribution of term grades, and the record of improvement of grades constitute the data used for analysis and interpretation.

A comparison of the figures obtained from special test averages, term grades, and records of improvement, reveals the fact that pupils of superior ability did not benefit by separate grouping in geometry, for their geometry scores did not average as high as did those of pupils of the same ability in mixed classes. Pupils of inferior ability, on the other hand, seemed to benefit by their separation from bright pupils, for the scores of those in low-ability classes averaged higher than the scores of those of the same ability in mixed classes.

In English III the results obtained indicate that pupils of superior ability were able to do the work of this course equally well, whether in classes of uniform ability or in mixed classes. On the other hand, pupils of inferior ability seemed to benefit somewhat, although not to the extent that they did in geometry, by being separated from their stronger classmates. It may be that the pace set by the stronger pupils in mixed classes was too fast for those of slower mentality, and that more uniform grouping of ability gave the slower ones time to think, thus forcing them to do more of their own thinking.

A survey of the results in English I shows that they were very similar to those in English III, even though the method of classification was different—the one being based on mental tests alone, the other on both mental tests and grades of the previous term. The pupils of high ability did equally good work in either mixed or segregated groups. Those of low ability obtained slightly better results in segregated classes than in mixed classes.

In ancient history, the results of scores both in the special tests and the term grades, showed a decided advantage for pupils of high ability who were in high ability groups. On the other hand, the records show that pupils of low ability did much better work in mixed classes where they were brought in contact with brighter minds than they did in uniform groups of low ability. It is easy to believe that in a subject such as history, in which much use is made of the socialized recitation, pupils of superior ability might profit considerably by being in contact with only those of superior ability and relieved of the retardation which slower minds give to such a class. Likewise, slower minds, when separated from brighter ones, may lose a great deal of the stimulus and inspiration which the brighter ones might bring into the discussion of historical problems.

SUMMARY OF CONCLUSIONS

As a result of this experiment, we are unable to say that the grouping of high-school children according to ability secures better results than random grouping, for a comparison of the scores obtained by pupils of high ability in selected and mixed classes, and, also, a comparison of the scores of pupils of inferior abilities in the various subjects, do not all show the same tendencies.

Pupils of superior ability in geometry did better work in mixed classes than they did in selected groups. Their history scores were much higher than scores of pupils of the same ability in mixed classes. In English the differences were so small as to be negligible.

Neither can we say that separate grouping is always beneficial to the slow pupils. In this experiment slow pupils in separate groups obtained much better results in geometry, slightly better in English, but in history they were much retarded by being grouped separately.

It will be noted that in planning this experiment, no attempt was made to formulate teaching methods specially adapted to classes of high or low ability. Each teacher was instructed to use such methods as he or she would ordinarily have used in dealing with pupils of varying abilities in their classes. It was the sole purpose of this study to determine if there was any advantage to be gained from homogeneous groupings. While the mere device of grouping according to ability, from the evidence shown in this investigation, does not show strong enough or consistent enough advantages in any subject to justify the time and work which is required to classify pupils in this manner, it is quite possible that with a special method of instruction, adapted to each of these groups according to its needs, such a plan of grouping might show very positive results.[1]

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[1] The reader's attention may be called to the comments made by Professor W. S. Miller in the *Twenty-First Yearbook* of this Society, Part II, Chapter VII, pp. 205 ff., to the effect that classification of high-school pupils on the basis of mental ability makes possible an adaptation of the technique of instruction to the needs of the group, "but it does not insure it;" similarly, that it "makes possible but does not insure an adaptation of materials of instruction to the needs of the group." Preliminary results from an experiment now in progress in the high schools of Michigan suggest strongly that whether gifted pupils will profit from segregation depends very largely upon the skill of the teacher in making the adaptations of the materials and technique of instruction that the segregation permits and suggests. It may also be pointed out that the extent to which the segregation of superior pupils facilitates their school work also depends to a considerable extent upon the rigor of the selection. A group composed of the top 10 percent can accomplish decidedly more than a group composed of the top 25 percent, while a group composed of the top 50 percent of a class can by no means lay claim to represent a segregation of "gifted" pupils.—EDITOR.

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D3. A STUDY OF THE EFFECTS OF CLASSIFICATION BY INTELLIGENCE TESTS

EDWARD L. MOYER
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INTRODUCTION

The purpose of this study is to compare the achievement of high-school pupils who were grouped into classes according to their standing in intelligence tests with pupils of like ability who were taught in mixed classes. The comparison was made in two subjects, algebra and Latin. Achievement was measured primarily by standardized tests, secondarily by teachers' marks.

TESTS AND METHODS EMPLOYED

For this study the records of pupils in Algebra 1A and Latin IA were used. Pupils in the mathematics department were classified into three groups by the National Intelligence Tests.[1] The Latin department segregated only the superior pupils. Pupils in each department were tested by standardized subject tests. A fuller description of the tests and the methods used follows.

The achievement tests were the Hotz Algebra Scales,[2] and the Henmon Latin Tests.[3] Three of the Hotz scales were used, namely; (1) Equations and Formula, (2) Graphs, and (3) Problems. The first of these has twelve, the second eight, and the third ten exercises.

Two tests were used from the Henmon scales—the Senten Scale, and the Vocabulary Scale.

In the latter part of May 1921, Scale A of the National Intelligence Tests was given to the pupils in the 8th grade who were to graduate in June. These were administered by the writer in the different grade schools. Then in October, 1921, all those pupils who had come to the high school were given Scale B of the same test. The reason for giving the first test in the grade schools was to secure conditions under which the pupils would be more at ease and, hence, would do more reliable work. The reason for giving the second test was to secure a check upon the first test.

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[1] National Intelligence Tests. Haggerty, Terman, Thorndike, Whipple, and Yerkes. World Book Co., Yonkers, New York.

[2] Hotz Algebra Scales. Henry G. Hotz. Published by Teachers College, Columbia University, New York City.

[3] Henmon Latin Tests. Dr. V. A. C. Henmon, University of Wisconsin. Tests published by World Book Co., Yonkers, New York.

The Hotz Algebra Scales were given after these pupils had received nine months of instruction in first year algebra. Each teacher, following standardized directions, gave the tests to his or her own classes. In giving the Latin tests exactly the same methods of procedure were used.

METHODS OF CLASSIFICATION

The scores of the incoming freshmen were arranged in descending order and the upper and lower tertiles were found. In the case of National Scale A, all pupils having scores above 143 were classified as Group I; those below 124 were classified as Group III; and all between these scores were classified as Group II. After seven weeks, the first school report was issued. This, together with the results of Scale B of the National Intelligence Tests, was used to aid in making any shifts in classification that seemed necessary. In all departments where a sufficient number of classes could be scheduled during the same period, a classification was made in this manner. It was fairly well accomplished in mathematics, Latin, science, English, and French. However, in some of these departments classes containing non-segregated pupils necessarily had to be formed.

IS CLASSIFICATION JUSTIFIABLE AS SHOWN BY THE RESULTS SECURED?

Teachers' Opinions

In order to find an answer to this question, nine teachers who had had experience with segregated classes were asked the following questions:

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2. Do you consider that there is a definite relation between mentality and class achievement?

3. What, in your opinion, is the greatest benefit derived from classification?

4. Which group receives the most benefit? The least?

5. Do you think the results so far obtained merit its continuance?

6. Have you any objective evidence that classification gives us the desired results?

In answer to question 1 all replied: "Yes."

As to question 2, eight of the nine thought a definite relation existed, but they qualified their statements as follows: "Yes, but not high;" "Yes, but mentality is not a guarantee of achievement."

Representative answers to question 3 are as follows: "The possibility of grading the work to meet the needs of an entire group;" "It enables a teacher to adjust her teaching to the capacity of the group."

As to the group receiving the most and the least benefit we find differences of opinion. Five consider that the highest group receives most benefit. Four consider that the lowest group receives most benefit. As to the group receiving least benefit, three say "lowest," two the "average," three "highest," and one is "undecided." A few quotations will better express their views on the point. "The minus group misses the inspiration of the recitations made by the brighter pupils, a great loss." "The pupils in the upper group will do their work successfully regardless of classification." "It should be possible to obtain the same benefits with bright pupils as with slow pupils, but it is harder to get the teachers to push them to their limit." "The bright pupils receive the most benefit, the mediocre pupils the least benefit. The former are set free to develop their power, the latter are not stimulated and remain mediocre. Whereas, mediocre pupils, if stimulated by example, may become superior." All consider classification of sufficient importance to merit its continuance.

All answered question 6 negatively.

We may summarize the replies of the teachers briefly by saying that, in the opinion of teachers, classification by mental tests is desirable; it aids both superior and inferior groups; and, even though no objective evidence is at hand, it should be continued.

OBJECTIVE EVIDENCE

The method of tabulating the data of the experiment is as follows:

1. Three groups of pupils are considered, Plus, Medium and Minus: 'Plus' means pupils ranking in the upper third of both distributions of the National Intelligence Scales; 'Minus' means those in the lower third; and 'Medium' means those in the middle third.
2. Plus, Minus, Medium, and Mixed classes are named in accord with the classification above.
3. Owing to conflicts in programs, some of the pupils in segregated classes were not in sections where they belonged. This made it possible to secure the groups mentioned in the next paragraph.
4. Plus pupils taught in various Plus classes were listed together. In the same way Medium and Minus statistical groups were formed from classes of different rankings.
5. Each of the equal ability sections had an average of 15 pupils.
6. The achievements of these sections were next compared. For this comparison pupils were tested in Latin IA and Algebra IA. Their achievements were determined by Henmon Latin Tests, Hotz Algebra Scales, and the teachers' marks.
7. The differences in achievements of selected groups in Latin and algebra are discussed separately. Then comparisons are made. The details of the results and comparisons obtained are presented in the discussions of Tables III to VIII.

Table I is made up of the averages (arithmetic means) for nine of the sections, selected as explained. From this table we see that the sections with the exception of those composed of Plus pupils from Mixed classes, and the medium pupils from Plus classes are of approximately equal intelligence. The averages of the subject tests, however, are compared in the following tables.

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TABLE I.—COMPARISON OF AVERAGES MADE ON NATIONAL INTELLIGENCE SCALES, HOTZ ALGEBRA TESTS, AND TEACHERS' MARKS FOR SECTIONS IN ALGEBRA IA, WHICH HAVE BEEN TAUGHT IN PLUS, MEDIUM, MINUS OR MIXED CLASSES

SCALE	PLUS PUPILS FROM			MEDIUM PUPILS FROM				MINUS PUPILS FROM	
	Mixed Classes	Plus Classes	Minus-Medium Classes	Mixed Classes	Plus Classes	Medium Classes	Minus Classes	Mixed Classes	Minus Classes
National A	155	162	164	140	155	140	140	121	122
National B	156	156	156	138	138	139	140	124	121
Hotz Equation and Formula	8.6	9.1	8.1	6.9	8.4	7.8	6.7	5.9	6.1
Hotz Graphs	6.6	6.5	6.3	5.4	6.2	5.5	5.6	4.2	4.0
Hotz Problems	6.3	6.9	7.5	5.3	6.1	7.0	3.7	4.1	3.1
Hotz Composite	50.6	51.4	51.2	41.1	48.0	46.2	40.4	33.1	32.8
Teachers' Marks	85.0	85.6	95.5	81.9	84.0	82.4	85.0	77.9	81.4

TABLE II.—DIFFERENCES AMONG AVERAGES OF PLUS ABILITY SECTIONS TAUGHT IN PLUS, MIXED, OR MINUS CLASSES IN ALGEBRA

The first column under each heading indicates difference in units. The second shows the percentage difference

SCALE	EXCESS OF PLUS FROM PLUS OVER PLUS FROM MIXED		EXCESS OF PLUS FROM MINUS-MEDIUM OVER PLUS FROM MIXED	
	Units	Percent	Units	Percent
National A	7	4.5	9	5.8
National B	0	0	0	0
Hotz Equations and Formula	.5	5.8	−.5	−5.8
Hotz Graphs	−.1	−1.5	−.3	−4.5
Hotz Problems	.6	9.5	1.2	19.
Hotz Composite	.8	1.6	.6	1.2
Teachers' Marks	.6	.7	.5	.6

We may examine particularly the differences shown between the averages of the Hotz Composite scores. First consider only Plus sections in the light of Table II.

We find very little variation in ability between the Plus section from Plus classes and the Plus section from Mixed classes. The former exceeds the latter in every case except on Hotz Graphs. The Hotz Composite is 1.6 percent greater, and school marks only .7 percent greater. (The percentage is found by using, for the base, the lower of the two sections compared.) It will be noticed that in the different comparisons of this table that Plus pupils from Mixed classes handle the Graph test best. The Plus pupils from segregated classes in every case surpass Plus pupils from Mixed classes on the Hotz Composite. On account of the superiority of the segregated group in National A, however, we cannot attach any significance to this difference in the achievement scores.

How the various Medium sections compare can best be seen from Table III.

Each section has practically the same average intelligence except the Medium and Plus sections. The most outstanding differences

TABLE III.—DIFFERENCES AMONG AVERAGES OF MEDIUM-ABILITY SECTIONS TAUGHT IN PLUS, MEDIUM, MIXED CLASSES IN ALGEBRA IA

SCALES	EXCESS OF MEDIUM FROM PLUS OVER MEDIUM FROM MIXED		EXCESS OF MEDIUM FROM MEDIUM OVER MEDIUM FROM MIXED		EXCESS OF MEDIUM FROM MINUS OVER MEDIUM FROM MIXED	
	Units	Percent	Units	Percent	Units	Percent
National A	15	10.7	0	0	0	0
National B	0	0	1.	.7	2.0	1.5
Hotz Equations and Formula	1.5	21.7	.9	.13	−.2	−3.0
Hotz Graphs	.8	14.8	.1	1.9	.2	3.7
Hotz Problems	.8	15.1	1.7	32.	−1.6	−43.2
Hotz Composite	6.9	16.8	5.1	12.4	−.7	−1.7
Teachers' Marks	2.1	2.6	.5	.6	3.1	3.8

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cent	Units	Percent
	0	0
7	2.0	1.5
13	−.2	−3.0
9	.2	3.7
	−1.6	−43.2
	−.7	−1.7
	3.1	3.8

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existing here are those between the Medium section from Mixed classes, and the Medium sections from Medium and Plus classes, respectively. For example, the average of the Medium segregated section on the Hotz Composite exceeds that of the Medium mixed section by 12.4 percent. The Medium section from Plus classes shows even a greater superiority. This may be due in part, however, to superior intelligence. In the separate tests, the medium students taught in medium classes greatly exceed all others in the Hotz Problem test. The tests seem to indicate first that pupils of medium ability do better in segregated classes of medium ability (and possibly in classes composed chiefly of pupils of high ability) than in mixed classes or in classes of prevailingly low ability. The teachers' marks indicate, as we should expect, that pupils receive higher marks when they are with pupils whose ability is in general below their own than when they are with their peers.

For comparison of Minus pupils only two sections of equal ability are available. One of them was taught in Mixed, the other in Minus classes. See Table IV.

TABLE IV.—DIFFERENCES BETWEEN AVERAGES OF MINUS-ABILITY SECTIONS, TAUGHT IN MIXED AND MINUS CLASSES IN ALGEBRA IA

Excess of Minus from Minus over Minus from Mixed	National A	National B	Hotz Equation and Formula	Hotz Graphs	Hotz Problems	Hotz Composite	Teachers' Marks
Units	2	−3	.2	−2	−1.0	−.3	3.5
Percent	1.6	−2.5	3.3	−5.0	−25.0	−.9	4.3

On two of the three algebra tests and the Composite test, the Minus from the Mixed classes excel. On the Equation and Formula tests the Minus from Segregated classes are 3.3 percent better. Teachers grade the Minus sections higher when segregated, as we should expect. The 25 percent of superiority of the section from Mixed over the section from Segregated in Problems may indicate that they gain much as to method of attacking such problems from their contact with better pupils. As a whole, these results indicate that the presence of pupils of higher ability is at least not detrimental to the slow pupils.

The investigation with pupils in Latin 1A is necessarily less extensive. Only the Plus pupils in this department were segregated. Four sections have been selected, viz; Plus from Plus classes, Plus from Mixed classes, Medium from Plus classes, and Medium from Mixed classes. A comparison of averages for these sections is given in Table V.

TABLE V.—COMPARISON OF AVERAGES MADE ON NATIONAL INTELLIGENCE SCALES, HENMON LATIN TESTS, AND TEACHERS' MARKS FOR SECTIONS IN LATIN IA, WHICH HAVE BEEN TAUGHT IN PLUS AND MIXED GROUPS

SCALES	PLUS PUPILS FROM		MEDIUM PUPILS FROM	
	Mixed Classes	Plus Classes	Mixed Classes	Plus Classes
National A	159	156	130	129
National B	147	154	128	131
Henmon Test Vocabulary	69.9	74.6	61.2	63.6
Henmon Latin Sentences	29.3	32.5	24.0	23.3
Henmon Composite	49.6	53.7	42.6	44.0
Teachers' Marks	84.	83.5	81.5	79.5

TABLE VI.—DIFFERENCES BETWEEN PLUS PUPILS TAUGHT IN PLUS CLASSES AND PLUS PUPILS TAUGHT IN MIXED CLASSES IN LATIN IA

Excess in Plus from Plus over Plus from Mixed	National A	National B	Henmon Vocabulary	Henmon Sentences	Henmon Composite	School Marks
Excess in Units	−1	7	4.7	3.2	4.1	−.5
Excess in Percent	−.6	5	6.7	10.9	8.3	−.6

From Table VI we see that the Plus pupils from Segregated groups surpass the Plus pupils from Mixed groups except in school marks. This is as we would expect. Table VII shows that Medium pupils in Plus classes do better in the tests than Medium pupils in

Mixed classes. This agrees with the results in the algebra tests. We find, furthermore, that the Medium pupils who are in Plus classes receive lower marks than do those in Mixed classes. This agrees with our other findings and constitutes a general confirmation of the validity of our data.

TABLE VII.—DIFFERENCES BETWEEN MEDIUM PUPILS TAUGHT IN PLUS CLASSES AND MEDIUM PUPILS TAUGHT IN MIXED CLASSES IN LATIN 1A

Excess in Medium from Plus over Medium from Mixed	National A	National B	Henmon Vocabulary	Henmon Sentence	Henmon Composite	School Marks
Units	−1	3.	2.4	−.7	1.4	−2.0
Percent	−.8	2.3	3.9	2.9	3.3	−2.5

The validity of the comparisons which are made in this report rests on the assumption that pupils who make high scores in the intelligence test are capable of doing better school work and do, in general, do better work. That this assumption is correct is indicated by the comparative averages of Table VIII. These aver-

TABLE VIII.—SEGREGATED AND MIXED PUPILS COMPARED BY A STUDY OF THE EXCESS, IN PERCENTS, OF EACH ABILITY SECTION OVER NEXT LOWER FOR BOTH KINDS OF PUPILS

SCALES	Excess of Plus over Medium from		Excess of Plus over Minus from		Excess of Medium over Minus from	
	Mixed	Segregated	Mixed	Segregated	Mixed	Segregated
National A	10.7	14.3	28.1	31.7	15.7	13.8
National B	13.0	12.2	25.8	29.0	11.3	14.9
Hotz Equation and Formula	24.7	16.7	45.8	49.0	17.0	27.9
Hotz Graph	22.2	18.2	57.1	62.5	28.6	37.5
Hotz Problems	18.9	−1.4	53.7	122.6	29.3	126.0
Hotz Composite	23.1	11.3	52.8	56.7	50.2	40.8
Teachers' Marks	3.8	3.9	9.0	5.2	5.1	1.2

ages indicate that the pupils who are superior in their intelligence test scores are also superior in the subject test scores, both in the Mixed and in the Segregated classes.

SUMMARY

The results of the study may be briefly summarized as follows:

1. In the algebra tests the superior pupils who were in segregated sections made about the same scores as those who were in mixed sections, but in the Latin tests the superior pupils in the superior class excelled the superior pupils in the mixed class.

2. In both subjects the medium pupils in superior or medium segregated classes excelled the medium pupils in mixed classes.

3. In algebra the medium pupils in the low segregated section made lower scores than did the medium pupils in the mixed section.

4. In algebra the poor pupils made about the same scores in the low section as in the mixed section.

5. A pupil's mark depends in a measure on whether he is with pupils who are superior or inferior to him in ability.

6. In order to judge of the value of segregation we must compare the achievements of pupils who are in segregated classes corresponding to their ability, with similar pupils in mixed classes. When we make this comparison, we find that the superior pupils and the medium pupils appear to do somewhat better in segregated than in mixed classes. The inferior pupils, however, do not appear to benefit by segregation so far as their scores on the standard tests are concerned. Whether or not they benefit in other ways the data do not indicate.

7. Finally, the data suggest that, if pupils are segregated according to ability, those, who are accidentally misplaced in higher sections than their ability warrants, may actually profit by this misplacement, but that those who are misplaced in lower sections may suffer from such misplacement.

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E. STUDIES OF THE CAREERS OF ACCELERATED CHILDREN

E1. ACADEMIC RECORDS OF ACCELERATED STUDENTS

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In an address before the Stanford University Forum in 1921, Professor Terman asserted his strong faith in the advisability of early entrance to the university in case of students who have superior high-school records.[1] Other investigators have also reported that they have found under-age entrants to universities more successful than over-age entrants. The purpose of the investigation here reported was to test the case for accelerated students at the University of Wisconsin.

In this paper the term "accelerated student" means simply a student who at the age of sixteen and one-half years has qualified fully to enter the University of Wisconsin. During the four years, 1918-1921, seventy-four such students entered the College of Letters and Science of this University as regular students. The success of their academic records was determined by examining the records of the university registrar. Personal data from students still attending the university in 1923 were obtained in response to the following questionnaire:

I. Elementary School

Age at entering school.......... What grade did you enter?..........
Progress in elementary school:
  Did you ever spend two years in the same grade?..........
  Did you ever complete two or more grades in one year?..........
  Was your progress otherwise accelerated as a result of mid-year promotions, summer work, etc.? If so, how?..............................

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[1] L. M. Terman. "Intelligence tests in colleges and universities." *School and Society*, 13; 1921, 481-494, especially 493.

Advantages in elementary-school years:

Did you live near a good school?..........

Types of schools attended (check): Rural....; Small village school....; City school....

Special interests during elementary-school years (check):

Athletics....; Social....; Books....; School studies....

Health during this period: Good....; Poor....

Age at completion of elementary school..........

II. High School

Age at entering high school..........

Progress in high school:

Did you repeat any subjects?..........

Did you complete high school in less than four years?.......... If so, how?..........

Advantages in high-school years:

Did you live near a good high school?..........

Type of school attended (check): Village high school....; City high school....

Special interests during high-school years (check):

Athletics....; Social....; School studies....

Health during this period: Good....; Poor....

Age at completing high school..........

Responses to this questionnaire were made by thirty-one of the forty-one students still in residence in 1923. The following discussion of the academic careers of these students from their entrance to the elementary school until their admission to the university is based upon these responses.

RECORDS OF ACCELERATED STUDENTS IN THE ELEMENTARY SCHOOL

As shown in Table I the ages at which these accelerated students entered the elementary school range from 4 to 9. The grades first entered range from the kindergarten to Grade V. Of those who entered the kindergarten, three were 4 years of age, three were 5, one was 6, and one was 7. The child who entered the kindergarten at 6 remained there only a few months. He finished the eight grades of the elementary school at 11 years and the high school at 14.5 years. The pupil who entered the kindergarten at 7 finished the elementary

TABLE I.—THE ELEMENTARY-SCHOOL RECORDS OF THIRTY-ONE ACCELERATED STUDENTS

1. Ages of accelerated students at entrance to elementary school:						
Ages in years	4	5	6	7	8	9
No. of students	3	12	11	2	1	2
Median age, 6.1; Average age, 5.7; Modal age, 5.						
2. Grade entered by accelerated students at entrance to elementary school:						
Grade entered	Kg.	1	2	3	4	5
No. of students	8	19	1	1	1	1
3. Progress in elementary school:						
No. who repeated one grade						1
No. completing more than one grade a year						29
No. who had outside help on the work						5
4. Advantages during elementary-school years:						
No. near good school						22
No. far from good school						9
Type of school: Rural, 6; Village, 3; City, 22.						
5. Special interest during this period:						
Athletics, 13; Social, 11; Books, 25; School studies, 13.						
6. Condition of health during this period:						
Good, 27; Fair, 3; Poor, 1.						
7. Age at completion of the elementary school:						
Ages		11	12	13	14	15
No. of students		9	17	5	0	0

school at 13. Of the nineteen children who entered Grade I when they began school, nine were 5 years of age, and ten were 6. The child who entered Grade II when she entered school was 7 years of age. She attended a private school, and reports that she had a great deal of individual attention. She finished the elementary school at 11. The pupil who entered Grade III was 8 years old. Two years later he entered Grade VII of Wisconsin (University) High School. The fourth-grade entrant was 9 years of age. She finished Grade VIII at 12. The pupil who entered the fifth grade was 9 years old. At 12 years she completed the eight grades of the elementary school.

From the data collected it is found that twenty-nine of these children completed more than one grade a year in certain years. Only one was ever required to repeat a grade; later, in the elementary school, he overtook his class. Two pupils who completed a grade a year were only 4 years of age when they entered school. All the students of this accelerated group completed the elementary school before they were 14 years of age. The fact that about one-third attended rural or village schools indicates that these students as a whole probably received only average academic training. One of the possible reasons for early completion of the elementary school is that their health was "good" in nearly all cases.

The remaining data of Table I are at least suggestive. These students report that as children they had the usual types of interests. Only one reported that he had no interests during his childhood. Of the thirteen who were interested in athletics, four reported special interests in school work, five in social affairs, and nine in books read outside the school. Of the eighteen students who say that they were not interested in athletics, nine were boys and nine were girls. These students report deep interests in books and school work. The types of aid received by five students outside the school consist mainly of aid given by parents. Every student who reported such aid completed more than a grade a year.

Records of Accelerated Students in the High School

High-school entrance age here refers to the age at entrance to Grade IX. Table II, which summarizes the students' reports upon their high-school work, shows that all but five entered the high school early enough to belong to this group of accelerants, even though no additional gains were made. Of the eight who entered the high school at 11 years of age, four began the elementary school at 6, three at 5, and one at 8; six finished the high school at 15

Table II.—The High-School Records of Thirty-one Accelerated Students

1. Age at entering the high school:				
Ages	11	12	13	14
No. of students	8	18	5	0
2. Progress made in high school:				
No. who spent more than four years in high school				0
No. who spent four years in high school				20
No. who spent less than four years in high school				11
3. Advantages during the high-school years:				
Near good school, 25; far from good school, 6.				
Type of school attended: Village, 7; City, 24.				
4. Special interests during high-school years:				
Athletics, 17; Social, 21; Books, 22; School Studies, 18.				
5. Health during this period:				
Good, 29; Fair, 2; Poor, 0.				
6. Age at completion of high school:				
Ages		14	15	16
No. of students		2	6	23

and two at 14. Nine boys and nine girls entered the high school at the age of 12.

Table III shows the great differences in the length of time required by different pupils to complete the elementary school. The two pupils of this group who, as already stated, began school at 4 and entered the high school at 12 finished the high school at 16. Similar variations in the entrance ages and progress of the other pupils were reported. About one-third of these students completed the high school in three years. One student reported that she had surplus credits at high-school graduation, although she did not complete the high school in less than four years; others may have done the same. Almost exactly one-fourth of the group that spent four years in the high school, and, likewise, of the group that spent less than four years in the high school, attended village high schools.

TABLE III.—THE AGES AT WHICH EIGHTEEN TWELVE-YEAR-OLD HIGH-SCHOOL PUPILS ENTERED THE ELEMENTARY SCHOOL

No. of Pupils	Ages at Entrance to the Elementary School
2	4
8	5
5	6
1	7
2	9

Eight students gained time in the high school by carrying more than the regular number of subjects, and three by attending summer sessions. The interests reported by the thirty-one students are varied: one cared for nothing but athletics; one cared only for books. The variety of interests would, if the reports are true, absolve these students from a charge of being too bookish. According to their own reports, these young men and women were physically fit during their high-school years.

RECORDS OF ACCELERATED STUDENTS IN THE UNIVERSITY

Tabular summaries of the records of accelerated students are given in Tables IV to VI. Of the twenty-eight who withdrew from the university, twelve left during the first semester after they entered; for these withdrawals reasons are assigned or not as shown

TABLE IV.—CLASSIFICATION OF ACCELERATED STUDENTS AT THE UNIVERSITY

		Percent
Number entering the university............	74	
Number who graduated....................	5	6.8
Number who withdrew.....................	28	37.8
Number still attending during 1922-1923....	41	55.4

in Table V. The percentage of these students who withdrew with unsatisfactory grades is 10.2 as compared with 15.8 for the college of letters and science as a whole.[2] Of those who remained for only two semesters, four withdrew on account of low grades; if in addition to these, the twelve for whom no grades were recorded withdrew on account of low grades, the total would be sixteen, or 21.6 percent. During the year 1920-1921, 25.5 percent of all the freshmen withdrew from the University on account of low grades. A study reported recently in *School and Society* showed that 33.3 percent of the freshmen in thirty-two state universities did not return as sophomores.[3] Of these it was estimated that 20 percent withdrew on account of low grades. These comparisons indicate that the seventy-four accelerated students made approximately average records, so far as early eliminations due to low grades is concerned.

The sixteen students who remained a semester or more and then withdrew gained the distinctions catalogued in Table V. Of those who withdrew on account of ill health, one spent five semesters at the university, the other seven semesters. One of the students who withdrew after seven semesters was placed on probation on account of progressively lower grades for successive semesters, although her general average is 84. The relation between inferior scholarship and withdrawals is very close for this group of students. The student who withdrew on account of insufficient funds, and one of the four for whom no reason was assigned for leaving made good scholarship records. All the others have averages of poor or failure.

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[2] C. A. Smith. ''Why students leave college.'' *Educational Administration and Supervision*, 9: 1923, 339-344.

[3] The American Association of Collegiate Registrars Proceedings. Report by H. H. Caldwell on ''The mortality rate in our freshman classes.'' *School and Society*. May 6, 1922: 498-500.

TABLE V.—ACADEMIC RECORDS OF SIXTEEN ACCELERATED STUDENTS WHO WITHDREW FROM THE UNIVERSITY

1. Length of stay at the university:

Semester during which withdrawal occurred....	1	2	3	4	5	6	7	8
Number of students who withdrew............	0	5	3	4	2	0	2	0

2. Averages of grades of students who withdrew:

Averages of grades	No. receiving averages first semester	No. receiving general averages for all work taken
95-100..............	0	0
90- 94..............	0	0
85- 89..............	2	4
80- 84..............	3	5
75- 79..............	3	2
70- 74..............	2	0
Below 70...........	6	5

3. Reasons for withdrawals assigned in university records:

	No. of students	Average grades received first semester	Average grades for all work taken
Low grades............	9	77	71
Poor health............	2	71	62
Lack of funds.........	1	80	85
No reason given........	4	80	76

Table VI shows that unusually high percentages of these students received grades from 90 to 100. The percentages and averages of this table are based upon the numerical grades recorded by the University. This table shows also that particularly in English these students sound the depths of low marks. The average of these students in all subjects is 81.8 as compared with an average of 80.0 for all university students. At the time of obtaining these data, there

TABLE VI.—ACADEMIC STANDINGS OF SIXTY ACCELERATED STUDENTS AT THE UNIVERSITY OF WISCONSIN

Grades received	English		Mathematics		All subjects	
	Number	Percent	Number	Percent	Number	Percent
0- 39	2	3.3	0	0	0	0
40- 49	0	0	1	4.0	1	1.7
50- 59	1	1.7	0	0	2	3.3
60- 69	1	1.7	0	0	4	6.6
70- 79	7	11.7	9	36.0	6	10.0
80- 89	42	70.0	11	44.0	42	70.0
90-100	7	11.7	4	16.0	5	8.3
Median	84.5		82.5		84.0	
Average	82.5		81.4		81.8	

were no records of acceleration while at the University. There is a correlation of .53 ± .08 between the average high-school and average university grades of these students. Of the ten students with the lowest high-school marks of this group, over half made university grades of poor or failure; of the ten with the highest high-school marks, all made university grades of good or excellent.

INDIVIDUAL RECORDS OF ACCELERATED STUDENTS

In order to show in greater detail the school histories of accelerated students, individual accounts of a representative sampling of them are given here. These accounts indicate that accelerants may be excellent, good, or fair. No accounts of the students who are very poor are available because such students left school before the questionnaire was sent.

Student 4 began school at the age of 6. He entered the first grade, finished the elementary school at 11, and the high school at 14. His high-school record was excellent. His university record in chemistry is excellent;[4] French and history good; English, economics, and philosophy fair; and mathematics poor. His general average is fair. He reports good health and abiding interests in reading, social affairs, and school work. He has attended only city schools.

Student 7 entered the kindergarten at 4 and made normal progress thereafter. His record is fair in chemistry, English, and Spanish; poor in history and economics; and incomplete in political science. He disclaims an interest in anything except athletics. His health has always been good, and he has attended only city schools.

Student 11 entered the first grade at 5 years of age, completed the elementary school at 12, and the high school at 16. Her university record is as follows: Spanish, French, botany, and philosophy, excellent; English, education, political science, and geology, good. Her average is excellent. She attended a rural elementary school and a small village high school. Her health has always been excellent and her interests are diversified.

Student 15 entered the kindergarten at 4, finished the elementary school at 11, and the high school at 15. In the university she made a record of excellent in English, physics, economics, chemistry, and anatomy; a record of good in French, mathematics, and zoology; and fair in philosophy. This student, of excellent physical condition, has always attended strong city schools. Her interests are athletics, social affairs, and books.

Student 19 entered the kindergarten at 6, completed the elementary school at 11, and the high school at 14. At the university he has the following records: good in English, chemistry, history, and Latin; fair in geology, French, economics, mathematics, and philosophy. He appears to be normal in interests and health. He is a city school product.

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[4] At the University of Wisconsin, excellent signifies a grade of 93-100; good, 85-92; fair, 77-84; poor, 70-76; and failure below 70.

Student 23 entered school at 6, and finished the high school at 15. His university record is nearly excellent. His chief interest is, and has been, school work. His health is excellent. He has attended only city schools.

Student 24 entered the third grade at 8, and finished the high school at 16. Her university record is a very little below excellent. Books and school work are her chief interests. She is only "slightly" interested in social affairs and athletics. Her health is excellent. She is a product of city schools.

Student 29 entered the kindergarten at 4, made normal progress in the elementary school, and took his high-school course in three years. His university average is low in the "fairs": good in English, physical education, and military drill; fair in geology and history; and poor in Spanish and mathematics. Although he reports that he has always been interested in social affairs, athletics, and books, he has never cared much for school studies. His health has always been good. He has always lived in a city and attended city schools.

CONCLUSIONS

Several types of acceleration have been found: early entrance, skipping of grades, and carrying of more than the regular amount of school work in the high school. No students attended schools which provide any form of the 'multiple track' system for pupils of different abilities. Special aid in the form of pre-school training, parental aid, or summer school sessions was given to a few of the accelerants.

It was impossible to obtain accurate records of the social life of these students while in the high school or the University. It seems, however, from the available information that they entered into as many social activities as the average student. In fact, the entire records of these students indicate that they are nearly, if not quite, normal in everything except pedagogical age.

In spite of the disruption of work caused by skipping grades or otherwise completing more than a grade a year, all of these students were academically successful until after high-school graduation. Great advantages might have accrued had proper guidance been administered, for it is clear that certain of these students were only accelerated and were not precocious. The records made in the university by these accelerants corroborate Terman's assertion which was referred to at the beginning of this paper. Of the students who presented superior high-school records, all made either good or excellent records at the university. Of the students who presented mediocre or poor high-school records, several were advised by the registrar at the time of entrance to the university further to fortify themselves by an additional year of high-school work. Their university records show the wisdom of the advice.

More careful selection of students for acceleration would reduce, if not eliminate the academic failures which have been cited in this paper. So far as academic work is concerned, teachers and parents could safely advise certain students to finish school in less than normal time, but, at the present time, teachers and parents do not effectively guide children in this respect. At present, accelerants are likely to have gained time because of the ambition of teachers or parents as well as because of superior capacities. As a consequence, the academic records indicate that in both the high school and the university, some accelerants are brilliant while others are only mediocre.

E2. A STUDY OF THE SUBSEQUENT STANDING OF SPECIALLY PROMOTED PUPILS

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Introduction

As used in this study, 'special promotion' means the skipping of a half-grade of the elementary school course. It has been the custom in this city for the past ten years to recommend to the superintendent for special promotion such pupils as the classroom teacher and the principal felt could carry the work of the next higher half-grade.

As the question of locating possible candidates was left entirely to the classroom teacher and the principal, there was naturally considerable flexibility in the exercise of this privilege—in some buildings comparatively large numbers were recommended for special promotion, while in others there was practically none.

As just stated, the teacher's judgment was the basis upon which the special promotion was recommended. Intelligence tests were not used as the basis. Mental test data for the pupils in this study were obtained for the purpose of this study after the special promotions took place.

It was for the purpose of making a thorough systematic check on the progress of pupils specially promoted during this ten-year period that this study was made. The research department was desirous of knowing whether the success of the pupils warranted having the practice of grade-skipping continued. Progress in school subjects, as shown by a critical examination of their subsequent records, is taken as the criterion of success.

The records show 884 cases of special promotion during the period from 1912-13 to the end of the first semester 1922-23. Of these only such cases could be used in this study as remained in the city during several semesters after they had been specially promoted. Consequently, the selection was made by taking in order the first one hundred cases that were still in the Long Beach schools at the end of the first semester 1922-23, and for which complete scholastic records were available.

The following information was secured from the term records for each of the one hundred pupils studied: (1) the scholastic record of the pupil for the semester preceding special promotion; (2) the half-grade skipped; (3) the scholastic record in all subjects for each semester from the time of special promotion to the end of the first semester 1922-23.

An individual case record-sheet containing this information, together with the intelligence rating of each pupil, was prepared. The following sample shows the content and arrangement of the data in each of the individual case records:

CASE No. 22 I. Q. 136	Citis.	Read.	Spell.	Lang. or Gram.	Arith.	Geog.	Hist.	Writing	Hygiene	Drawing	Music	Home Ec.
1A—2A	1	1	1	1								
Skipped 2B												
2A—3B	1	1	1	1								
3B—3A	1	1	1	1	1	–	–	2	–	2	3	
3A—4A	–	1	1	1	2	1	–	2	–	2	2	
Skipped 4B												
4A—5B	1	1	1	1	1	1	–	2	1	1	1	
5B—5A	1	2	2	2	2	2	2	2	–	2	2	2
5A—6B	1	2	2	2	2	3	2	3	2	2	2	2
6B—6A	2	2	2	3	2	2	2	3	3	3	–	–

Notation:

1. I.Q. 136.
2. 2B and 4B are the half-grades skipped.
3. Grades lower first semester after special promotion; none.
4. Grades same or higher first semester after; citizenship, reading, spelling, language.
5. Grades lower second semester after; none.
6. Grades same or higher second semester after; citizenship, reading, spelling, language.
7. Average of preceding grades same as average of first semester following.
8. Average of preceding grades higher than average of second semester following.

INTERPRETATION OF THE DATA APPEARING IN THE INDIVIDUAL CASE RECORDS

From the facts to be found in the individual case records, an attempt has been made to determine the degree of reliability which

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:

Writing	Hygiene	Drawing	Music	Home Ec.
2	–	2	3	
2	–	2	2	
2	1	1	1	
2	–	2	2	2
3	2	2	2	2
3	3	3	–	–

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can be placed on certain factors as indications of ability to skip a grade without subsequent injury to the student's scholastic record. These factors are: the I.Q. of the pupil, his scholastic record in a particular subject, the average of his term marks[1] in three subjects, and the particular grade skipped. First, we wish to know whether the I.Q. alone, without reference to accomplishment, is a fair basis upon which to make our 'special promotions.' The I.Q. as a basis of prediction will be studied for these subjects: citizenship, reading, arithmetic, spelling, and writing.

A. Citizenship

Table I shows this with reference to the subject of citizenship for the first semester.

TABLE I.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN CITIZENSHIP THE FIRST SEMESTER FOLLOWING

FOR INDIVIDUALS IN:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Group I—I. Q. up to 110. (Average Intell.)........	8	22	24	67	28	78
Group II—I. Q. 110–120. (Superior Intell.)........	2	8.7	19	82.6	21	91.3
Group III—I. Q. over 120. (Very Super. Intell.).....	5	18	22	78.5	23	82

Using intelligence scores (I.Q.'s) as a basis of predicting success in citizenship after special promotion, the data show that, for pupils of normal intelligence, the chances are 78 to 22 (4:1) that the pupil will succeed as well or better in the first semester following such promotion. For those of superior intelligence the chances are 91.3 to 8.7 (10:1)[2] that they will succeed as well or better. For those of very superior intelligence the chances are 82 to 18 (5:1).

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[1] The expression "*term marks*" is used in speaking of the marks given in a school subject at the end of a semester.

[2] For convenience nearest units are used.

It appears that were the I.Q. to be used as a basis of special promotion in citizenship, success in securing the same or higher marks would be attained in 78 out of 100 cases for pupils of average intelligence; 91.3 out of 100 cases for pupils of superior intelligence; and 82 out of 100 cases for pupils of very superior intelligence.[3]

For the second semester after special promotion the results are slightly different, as shown in Table II.

TABLE II.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN CITIZENSHIP THE SECOND SEMESTER FOLLOWING

FOR INDIVIDUALS IN:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Group I—I. Q. up to 110...	7	21	23	70	26	79
Group II—I. Q. 110–120...	5	29.5	11	64.5	12	70.5
Group III—I. Q. over 120..	3	10.5	24	86	25	89.5

For the second semester after special promotion, the data show that for pupils of normal intelligence the chances of equal success in citizenship are 79 to 21 (4:1); for superior pupils the chances are 70.5 to 29.5 (2:1); for very superior pupils the chances are 89.5 to 10.5 (9:1). It seems that in the second semester the chances of success equal to that had preceding promotion for the superior pupils are only about 2:1 as against 4:1 the first semester. For very superior pupils, however, the chances have increased from 4:1 the first semester to 9:1 the second semester.

There can be no question, then, that for pupils of very superior intelligence, skipping a half-grade may safely be resorted to as far as the subsequent citizenship record is concerned.

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[3] It should be noted that, in order to determine whether a pupil's work falls off or not, the quantity which should be compared with the percentage of work which is the "same or higher" is the sum of the percentages of work which is the "same" and "lower." If these two quantities balance, the pupil has maintained his average. We cannot judge merely from a comparison of the percentage of "same or higher" with the percentage of "lower" whether the average grade has remained the same, risen, or fallen. The author uses this comparison to determine whether one I.Q. group behaves differently from the others. For this purpose it is satisfactory.—F. N. F.

B. Reading

The reliability of the intelligence quotient as a basis for predicting subsequent success in reading is shown in Tables III and IV.

Using intelligence as a basis of predicting success in reading following special promotion, the data show that during the first semester, for pupils of average intelligence, the chances are 51.5 to 48.5 (1.1:1) that they will succeed as well or better; for pupils of superior intelligence the chances are 83.5 to 16.5 (5:1) that they will succeed as well or better; for pupils of very superior intelligence the chances are 90.3 to 9.7 (10:1).

Table III.—Showing the Effect of Special Promotion as Seen in the Quality of Work Done in Reading the First Semester Following

For Individuals in:	Quality of Work					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Group I—I. Q. up to 110...	18	48.5	18	48.5	19	51.5
Group II—I. Q. 110–120...	5	16.5	22	73.5	25	83.5
Group III—I. Q. over 120..	3	9.7	26	84	28	90.3

It is practically certain from this that promotion will result in continued success in reading for superior children, while for average children the policy of skipping grades seems to be doubtful.

Table IV shows similar results for the second semester after special promotion.

Table IV.—Showing the Effect of Special Promotion as Seen in the Quality of Work Done in Reading the Second Semester Following

For Individuals in:	Quality of Work					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Group I—I. Q. up to 110...	16	45.5	16	45.5	19	54.5
Group II—I. Q. 110–120...	5	18	17	60.5	23	82
Group III—I. Q. over 120..	2	6.5	27	87	29	93.5

It appears that, were the I.Q. to be used as a basis of special promotion in reading, success in securing the same or higher grades would be attained in 54.5 out of 100 cases for pupils of average intelligence; 82 out of 100 cases for pupils of superior intelligence; and 93.5 out of 100 cases for pupils of very superior intelligence.

Therefore, in reading, skipping of grades may safely be practiced without danger of lowering the scholastic records of superior pupils, but it is not to be recommended for pupils of average ability.

C. Arithmetic

The predictive value of the I.Q. with regard to subsequent success in arithmetic is brought out in Tables V and VI. It will be seen in Table V that for pupils of normal intelligence, there is less than an even chance (47:53) of doing equally well in arithmetic during the first semester after special promotion. For pupils of superior intelligence the chances are 66.7 to 33.3 (2:1) that they will do as well in arithmetic the first semester after special promotion. For very superior pupils the chances of equal success are 56 to 44 (1.3:1).

TABLE V.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN ARITHMETIC THE FIRST SEMESTER FOLLOWING

FOR INDIVIDUALS IN:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Group I—I. Q. up to 110...	18	53	12	35.2	16	47
Group II—I. Q. 110–120...	8	33.3	12	50	16	66.7
Group III—I. Q. over 120..	11	44	11	44	14	56

There seems to be a noticeable handicap in arithmetic the first semester following for those of average intelligence who are specially promoted. According to Table VI, however, this handicap is largely overcome by the end of the second semester.

TABLE VI.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN ARITHMETIC THE SECOND SEMESTER FOLLOWING

FOR INDIVIDUALS IN:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Group I—I. Q. up to 110...	10	31.2	20	62.5	22	68.8
Group II—I. Q. 110–120...	8	35	7	30	15	65
Group III—I. Q. over 120..	10	40	13	52	15	60

In the second semester, as revealed by Table VI, the chances of equal success in arithmetic are 68.8 to 31 (2:1) for pupils of average intelligence. For superior pupils the chances are 65 to 35 (2:1) that they will do equally well. For very superior pupils the chances of equal success in arithmetic are 60 to 40 (1.5:1).

Whereas in reading, superior pupils continue to do superior work after skipping a half-grade, in arithmetic the practice would seem to be questionable.

D. Spelling

Table VII shows the degree of success attained in spelling during the first semester after special promotion by pupils in each of the three common groups on the basis of intelligence.

TABLE VII.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN SPELLING THE FIRST SEMESTER FOLLOWING

FOR INDIVIDUALS IN:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Group I—I. Q. up to 110	13	34	24	63	25	66
Group II—I. Q. 110–120	6	21.5	19	68	22	78.5
Group III—I. Q. over 120	3	10	26	86.7	27	90

Using intelligence scores as a basis of prediction of success in spelling for those who receive special promotion, the data show that for the first semester following special promotion the chances for doing as well or better are 66 to 34 (2:1) for pupils of average intelligence; 78.5 to 21.5 (4:1) for pupils of superior intelligence; 90 to 10 (9:1) for pupils of very superior intelligence.

Pupils of average ability, then, cannot skip a half-grade without danger of reducing the quality of work in spelling.

As seen in Table VIII, the reliability of the I.Q. as a basis for prediction of success in spelling for the second semester coincides very closely with the results for the first semester. It will be noted that for pupils of superior intelligence 96.4 percent do as well or better the second semester, as against 90 percent the first semester.

TABLE VIII.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN SPELLING THE SECOND SEMESTER FOLLOWING

FOR INDIVIDUALS IN:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No	Percent	No.	Percent
Group I—I. Q. up to 110...	13	35	23	62	24	65
Group II—I. Q. 110-120...	8	27.7	17	58.5	21	72.3
Group III—I. Q. over 120..	1	3.6	24	89	26	96.4

From the data it appears that were the I.Q., rather than accomplishment, to be used as a basis for promotion in spelling, success in securing the same or higher marks the second semester would be attained in 65 out of 100 cases for pupils of average intelligence; 72.3 out of 100 cases for pupils of superior intelligence; 96.4 out of 100 cases for pupils of very superior intelligence.

For pupils of superior intelligence, then, skipping a half-grade does not noticeably affect their subsequent ability to do satisfactory work in spelling.

E. Writing

In similar manner an attempt has been made to determine whether the I.Q. alone is a reliable basis for prediction of success in writing after special promotion.

TABLE IX.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN WRITING THE FIRST SEMESTER FOLLOWING

FOR INDIVIDUALS IN:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Group I—I. Q. up to 110...	9	32	15	53.5	19	68
Group II—I. Q. 110-120...	8	40	7	35	12	60
Group III—I. Q. over 120..	6	27.2	9	41	16	72.8

Table IX indicates that for pupils of average intelligence the chances of doing as well or better in writing the first semester after special promotion are 68 to 32 (2:1); for pupils of superior intelligence the chances of doing equally well are 60 to 40 (1.5:1); for very superior pupils the chances are 72.8 to 27.2 (2.6:1).

Comparing with the results shown in Table X, we notice that in the second semester only 60.7 percent of those of average intelligence have an equal chance, as against 68 percent the first semester. For those of superior intelligence, there is a 10 percent increase over the first semester of those who are likely to succeed equally well. The very superior group, on the other hand, shows only 60 percent attaining an equal degree of success, as against 72.8 the first semester.

TABLE X.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN WRITING THE SECOND SEMESTER FOLLOWING

FOR INDIVIDUALS IN:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Group I—I. Q. up to 110...	11	39.3	14	50	17	60.7
Group II—I. Q. 110–120...	6	28.7	8	38.1	15	71.3
Group III—I. Q. over 120..	8	40	9	45	12	60

It appears that, were the I.Q. used as the basis for promotion, success in securing the same or higher marks in writing the second semester would be attained in 60.7 out of 100 cases for pupils of average intelligence; 71.3 out of 100 cases for pupils of superior intelligence; 60 out of 100 cases for pupils of very superior intelligence.

In writing there seems to be a general falling off in the quality of work done after skipping. This may be due to lack of physical development, or motor co-ordination. Whatever the cause, it is so serious that the effects are not overcome by the end of the second semester following the special promotion. Persons having to do with special promotions should not fail to take this into consideration.

SUCCESS IN THREE SUBJECTS—LANGUAGE, READING, AND ARITHMETIC—AS AN INDICATION OF PROBABLE SUCCESS IN THESE SUBJECTS FOLLOWING SPECIAL PROMOTION

In the preceding tables an effort was made to determine how reliable is the one factor, I.Q., as a basis of special promotion.

Other factors are considered in the remaining tables. In Table XI a comparison is made between the average of the term marks in the three subjects—reading, language, and arithmetic—before and after special promotion.

TABLE XI.—SHOWING THE AVERAGE OF TERM MARKS IN READING, LANGUAGE, AND ARITHMETIC BEFORE SPECIAL PROMOTION, COMPARED WITH THE AVERAGE IN THE SAME SUBJECTS THE FIRST AND SECOND SEMESTERS FOLLOWING

	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
First Semester after Special Promotion..............	54	54	36	36	46	46
Second Semester after Special Promotion.......	39	39	46	46	61	61

Using the average of the marks in three subjects—reading, language, and arithmetic—as a basis for special promotion, the data show that for the first semester there is less than an even chance of securing as high an average in the three subjects as before special promotion. In the second semester this handicap seems to have been partially overcome and the chances are 61 to 39 (1.5:1) that the average in the three subjects will be as high or higher than it was before special promotion.

The average of the term marks in several fundamental subjects, then, would not alone seem to be a safe basis upon which to recommend skipping a grade.

TERM MARKS MADE IN A GIVEN SEMESTER IN ANY SUBJECT AS A BASIS FOR PREDICTING PROBABLE SUCCESS IN THAT SUBJECT AFTER SPECIAL PROMOTION

Is the term mark a pupil receives in a given subject a reliable indication that he will do as well or better after special promotion? Tables XII, XIII, XIV, and XV are designed to answer this question.

Using the term mark made during a given semester in arithmetic as a basis for predicting probable success in that subject after

A. Arithmetic

TABLE XII.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN ARITHMETIC THE FIRST SEMESTER FOLLOWING

For Those Receiving:	Quality of Work					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Term Mark—1	19	51.3	18	48.7	18	48.7
Term Mark—2	11	30.6	15	41.6	25	69.4
Term Mark—3	2	50	1	25	2	50

special promotion, Table XII shows that for those having previously made a term mark of "1" the chances are 48.7 to 51.3 (1:1.1) that they will do as well following special promotion. For those having previously made a term mark of "2" the chances of equal success following special promotion are 69.4 to 31.6 (2.2:1). For those having previously made a term mark of "3" the chances of equal success are 50 to 50 (or 1:1).

It would seem that the scholastic attainment in arithmetic during a given semester can not be taken as a safe prediction that the same quality of work will be done after special promotion.

For the second semester following special promotion the results are quite similar, as shown in Table XIII. According to this table, those having made a term mark of "1" before special promotion have an even smaller chance of doing equally well the second semester than they had the first.

The data show that a term mark of "1" is not a safe prediction that a pupil will do as well the first or second semester after special promotion. For those who previously received a term

TABLE XIII.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN ARITHMETIC THE SECOND SEMESTER FOLLOWING

For Those Receiving:	Quality of Work					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Term Mark—1	25	65.8	13	34.2	13	34.2
Term Mark—2	11	29	22	57.8	27	71
Term Mark—3	2	50	0	0	2	50

mark of "2," there is a chance of 3 out of 4 that they will do as well following special promotion. There is a chance of 1 out of 2 that those promoted on term marks of "3" will keep up to that standard of work.

There is small likelihood that those skipping a half grade on a mark of "1" in arithmetic will be doing the same quality of work in that subject two semesters later.

B. Language

In language the marks made during a given semester seem to be a more reliable basis for predicting that the pupil will do as well or better after special promotion. Table XIV shows that, for those previously receiving "1" in this subject, 64.5 percent do as well or better the first semester after special promotion. Of those who had previously done "2" quality of work, 66.7 percent maintain this standard the first semester after special promotion.

TABLE XIV.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN LANGUAGE THE FIRST SEMESTER FOLLOWING

FOR THOSE RECEIVING:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Term Mark—1	22	35.5	40	64.5	40	64.5
Term Mark—2	10	33.3	15	50	20	66.7
Term Mark—3	0	0	5	83.3	6	100

As is the case in arithmetic, there is smaller likelihood that those doing superior work preceding the skip will maintain their previous standard than there is for those doing average work.

For the second semester after special promotion the number maintaining their previous standards is larger, being 69 as against 64.5 out of 100 the first semester for the "1" group, and 87.5 as against 66.7 out of 100 for the "2" group.

Table XV shows that, using the marks made the previous semester in language as a basis of predicting success in that subject the second semester after special promotion, the chances are 69 to 31 (2.2:1) for those having term marks of "1"; 87.5 to 12.5

(7:1) for those having term marks of "2"; and 83.3 to 16.7 (5:1) for those having term marks of "3."

TABLE XV.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN LANGUAGE THE SECOND SEMESTER FOLLOWING

FOR THOSE RECEIVING:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
Term Mark—1	18	31	40	69	40	69
Term Mark—2	4	12.5	21	65.5	28	87.5
Term Mark—3	1	16.7	2	33.3	5	83.3

Standards of ability in language before special promotion are more nearly maintained by the superior group than by either the average or the very superior group.

EFFECT OF SKIPPING A PARTICULAR HALF-GRADE

In the study of special promotions, the question quite naturally arises as to whether there is any noticeable difference in the subsequent progress of the pupil, depending on the particular half-grade skipped. That is, does skipping the second or third grade show as marked an effect upon the subsequent school progress as does skipping the fourth or fifth grade or vice versa.

A. Citizenship

This question is answered by Tables XVI and XVII with regard to citizenship, by Tables XVIII and XIX with regard to reading, and by Tables XX and XXI with regard to arithmetic.

TABLE XVI.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN CITIZENSHIP THE FIRST SEMESTER FOLLOWING

OF THOSE WHO SKIPPED:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
2B or 2A	1	7.7	12	92.3	12	92.3
3B or 3A	2	16.7	9	75	10	83.3
4B or 4A	2	11.7	13	76.6	15	88.3
5B or 5A	5	26.3	12	63.2	14	73.7
6B or 6A	2	14.4	8	57	12	85.6

The data show that of those who skip 2B or 2A, 92.3 out of 100 do as well or better in citizenship than they did before skipping. Of those who skip 3B or 3A, 83.3 out of 100 do as well or better than they did before. Of those who skip 4B or 4A, 88.3 out of 100 do as well or better. Of those who skip 5B or 5A, 73.3 out of 100 do as well or better. Of those who skip 6B or 6A, 85.6 out of 100 do as well or better the first semester following the skip. The facts would seem to show that skipping 5B or 5A has a more harmful effect on the citizenship record than skipping any other half grade.

TABLE XVII.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN CITIZENSHIP THE SECOND SEMESTER FOLLOWING

OF THOSE WHO SKIPPED:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
2B or 2A................	1	7.7	12	92.3	12	92.3
3B or 3A................		16.7	7	58.3	10	83.3
4B or 4A................	4	25	12	75	12	75
5B or 5A................	3	20	12	80	12	80
6B or 6A................	5	41.7	5	41.7	7	58.3

The striking fact of this table is that of those who skipped 6B or 6A, only 58.3 percent are doing as well or better in citizenship. According to these tables, then, persons dealing with special promotions should give serious consideration to the citizenship situation at this point.

B. Reading

Tables XVIII and XIX seem to show that there is less injury to a pupil's subsequent record in reading, if he skips 2B or 2A, than if he skips any other grade.

According to Table XVIII, 94.1 percent of those who skip 2B or 2A do as well or better in reading the first semester after special promotion. Of those who skip 3B or 3A, 60 percent do as well or better in reading the first semester after special promotion. Of those who skip 4B or 4A, 79 percent do as well or better after special promotion. Of those who skip 5B or 5A, 70 percent

TABLE XVIII.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN READING THE FIRST SEMESTER FOLLOWING

OF THOSE WHO SKIPPED:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
2B or 2A	1	5.9	16	94.1	16	94.1
3B or 3A	6	40	8	53.3	9	60
4B or 4A	4	21	14	73.7	15	79
5B or 5A	6	30	12	60	14	70
6B or 6A	7	38.9	9	50	11	61.1

do as well or better the following semester. Of those who skip 6B or 6A, 61.1 percent do as well or better the first semester after special promotion.

It seems that skipping 6B or 6A is more harmful to subsequent reading progress than skipping any earlier grade, with the exception of 3B or 3A.

TABLE XIX.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN READING THE SECOND SEMESTER FOLLOWING

OF THOSE WHO SKIPPED:	QUALITY OF WORK					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
2B or 2A	1	5.9	15	88.2	16	94.1
3B or 3A	3	20	10	66.7	12	80
4B or 4A	4	22.2	13	72.2	14	77.8
5B or 5A	5	26.3	11	57.9	13	73.7
6B or 6A	8	47	5	29.4	9	53

The data in Table XIX show similar results in reading for the second semester after special promotion. The low record of those skipping 6B or 6A is even more pronounced than in the previous table. If only 53 percent of those who skip 6B or 6A continue to do as well or better, surely this should be seriously considered by those in charge of special promotions in reading.

C. Arithmetic

The quality of work in arithmetic, as conditioned by the particular grade skipped, is shown in the next two tables.

Table XX shows that skipping 3B or 3A places a serious handicap on the pupil for the following semester, since only 28.6 percent succeed in keeping up to the previous standard of achievement.

TABLE XX.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN ARITHMETIC THE FIRST SEMESTER FOLLOWING

Of Those Who Skipped:	Quality of Work					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
2B or 2A	0	0	6	100	6	100
3B or 3A	10	71.4	3	21.4	4	28.6
4B or 4A	8	42.1	9	47.4	11	57.9
5B or 5A	8	40	10	50	12	60
6B or 6A	7	38.9	7	38.9	11	61.1

The data in Table XXI reveal results quite different from those of the previous table. According to Table XXI, skipping 5B or 5A shows more serious effects the second semester following, for 83.3 percent of those who skip 2B or 2A do as well in arithmetic the second semester after special promotion as before; 71.4 percent of those who skip 3B or 3A do as well the second semester after special promotion; 66.7 percent of those who skip 4B or 4A do as well or better the second semester; 57.9 percent of those who skip 5B or 5A do as well or better the second semester; 50 percent of those who skip 6B or 6A do as well or better the second semester following special promotion.

TABLE XXI.—SHOWING THE EFFECT OF SPECIAL PROMOTION AS SEEN IN THE QUALITY OF WORK DONE IN ARITHMETIC THE SECOND SEMESTER FOLLOWING

Of Those Who Skipped:	Quality of Work					
	Lower		Same		Same or Higher	
	No.	Percent	No.	Percent	No.	Percent
2B or 2A	1	16.7	5	83.3	5	83.3
3B or 3A	4	28.6	7	50	10	71.4
4B or 4A	6	33.3	8	44.4	12	66.7
5B or 5A	8	42.1	8	42.1	11	57.9
6B or 6A	8	50	5	31.3	8	50

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Same	Same or Higher	
Percent	No.	Percent
100	6	100
21.4	4	28.6
47.4	11	57.9
50	12	60
38.9	11	61.1

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cond semester following,

PROMOTION AS SEEN IN THE
TIC THE SECOND

TY OF WORK		
Same	Same or Higher	
Percent	No.	Percent
83.3	5	83.3
50	10	71.4
44.4	12	66.7
42.1	11	57.9
31.3	8	50

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Those administering special promotions would do well to keep in mind that *the fifth and sixth grades can be skipped only with the probability of considerably lowering the quality of the work in arithmetic.*

DISTRIBUTION OF ALL TERM MARKS CONSIDERED

A tabulation of the total of all marks in all subjects found in the individual case records shows, within each of the three intelligence groups, the distribution of the marks (1, 2, 3, 4, and 5) indicated in Table XXII. Inspection of the table shows that of the total number of term marks received by all the pupils in Group I, 34.9 percent were "ones;" the superior group received 45 percent "ones" and the very superior group 56.3 percent "ones."

TABLE XXII.—PERCENT OF THE TOTAL NUMBER OF TERM MARKS FOR EACH GROUP

MARKS

GROUP	1		2		3		4		5	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
I	937	34.9	1234	46	464	17.3	23	0.8	23	0.8
II	887	45	819	41.6	227	11.5	21	1	14	.7
III	1353	56.3	852	35.4	163	6.7	18	0.7	16	0.6

The group of average intelligence had 46 percent of its total marks made up of "twos;" for the superior group 41.6 percent of the total marks were "twos;" and for the very superior group only 36.4 percent of the total marks were "twos."

Of the total number of marks for each group, the average intelligence group has 17.3 percent "threes;" the superior group has 11.5 percent "threes;" the very superior group has 6.7 percent "threes."

Judging from the distribution of the total (7051) bare term marks it would seem that *the 'very superior' child is likely to succeed in the majority of cases after skipping a half-grade,* whereas, for the child who makes only average intelligence scores, the practice of skipping grades would seem to be questionable.

FAILURES AFTER SPECIAL PROMOTION

Of the 100 pupils considered in this study, 38 were in the average, 30 in the superior, and 32 in the very superior intelligence group. All the cases of failures, 'trials,' and 'conditions' found in the records of these pupils since skipping a half-grade have been tabulated to note how they are distributed among the members of these three intelligence groups.

TABLE XXIII.—DISTRIBUTION OF THE CASES OF FAILURES, TRIALS, AND CONDITIONS

Group	Failures		Trials		Conditions	
	No.	Percent	No.	Percent	No.	Percent
I	5	13.1	4	10.5	1	2.5
II	1	3.3	1	3.3	1	3.3
III	0	0	0	0	0	0

Table XXIII shows that, of the average intelligence group receiving special promotion, 13.1 percent failed to be promoted at some subsequent time; 10.5 percent were promoted on trial, and 2.5 percent were conditioned some time following the special promotion.

Of the superior intelligence group, only 3.3 percent were subsequently failed, 3.3 percent promoted on trial, and 3.3 percent conditioned.

The fact that the very superior group shows no failures, no 'trials,' and no 'conditions' indicates that *pupils of very superior intelligence with good school records may quite safely skip a half-grade.*

REPEATED SKIPPING OF A HALF GRADE

Of the 100 pupils included in this study, 24 skipped a half-grade at least twice during their elementary-school course.[4] It is interesting to note how these cases of skipping a second half-grade are distributed among the three intelligence groups.

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[4] Having finished a half-grade of work in six weeks' summer school has, for the purpose of this study, been taken as skipping a half-grade. The half-grades made in summer school are so indicated on the individual case records.

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FAILURES, TRIALS,

Conditions	
No.	Percent
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TABLE XXIV.—DISTRIBUTION OF PUPILS WHO SKIPPED MORE THAN ONE HALF-GRADE

Group	No. of Cases	Percent of Total
I. I. Q. up to 110..	7	18.4
II. I. Q. 110–120...	3	10
III. I. Q. over 120...	14	43.7

Table XXIV shows that 43.7 percent of the pupils in the very superior group skipped at least two half-grades. According to Table XXIII there were no failures, trials, or conditions in the subsequent records of these pupils. This would seem to show that *continued success is almost certain to follow special promotions of pupils of very superior intelligence.*

CONCLUSIONS

A. On the basis of intelligence rating:

1. Skipping a half-grade cannot be recommended as a plan of special promotion for pupils of average intelligence.
2. For pupils of superior intelligence, the practise cannot be recommended on the data here secured and should probably not be used except for those cases in which all conditions, such as the home, health, and temperament are most favorable.
3. Very superior pupils do skip half-grades without a noticeable lowering of their subsequent school records.

B. On the basis of term marks in fundamentals:

1. It is shown that a creditable record in several subjects for one semester is insufficient evidence upon which to advocate the skipping of a half-grade.
2. More information than the average term marks for one semester should be considered before recommending special promotion.

C. On the basis of one semester's term mark in a given subject:

1. The fact that a pupil is doing excellent work in a given subject this semester is, alone, no safe indication that he will do as well or better in that subject after skipping a half-grade.

2. The study shows that those having done work of the quality designated by the term mark "1" are less certain to maintain their previous standards after skipping than are those who previously did the quality of work designated by term marks of "2" or "3." This is more true of such a subject as arithmetic than such a subject as language.

D. On the basis of the grade skipped:

1. Skipping grades five and six seems to affect more unfavorably the subsequent record in a special subject, such as citizenship (which in this study includes conduct) than does the skipping of lower grades. Whether this is due to mal-adjustment or inability properly to sense the social responsibilities of the advanced grade, the fact should be considered by those dealing with special promotions in these grades.

2. In subjects such as reading there is a greater lowering of the pupil's subsequent record as a result of skipping the lower grades than there is as a result of skipping the fifth or sixth grades.

3. Half-grades above 2A cannot be skipped by the mentally *average* pupil without a noticeable handicap in such a subject as arithmetic for at least two semesters following.

4. For those who skip within the lower grades, there seems to be, for several years following, a handicap in writing and drawing that may be due to lack of physical development or muscular co-ordination.

E. On the basis of economy to the school district:

The question has been raised whether special promotion by skipping grades is a legitimate measure of economy. Practically one-third of the pupils specially promoted have been advanced without subsequently lowering the quality of their work. Specially promoting this class, then, is saving the district $1276.48, which may be used for other purposes. The results of the Boise, Idaho, and the Seattle, Washington, studies show similar results with regard to money saving to the district.

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RECOMMENDATIONS

Those dealing with skipping grades as a method of special promotion should bear in mind the following points:

1. Several factors need to be seriously considered before pupils are recommended to skip a half-grade. Achievement alone in one or several subjects is insufficient basis upon which to recommend skipping a half-grade.

2. In cases of skipping grades, some provision should probably be made for covering the essentials missed in such a subject as arithmetic and the fundamentals in a subject such as reading. This might be done through rapid advancement classes organized near the end of the term or through coaching classes in which the advanced work is mastered previous to skipping the half-grade.

3. Pupils of average intelligence, as revealed by intelligence tests, as a rule will not succeed after skipping a half-grade; under favorable conditions pupils of superior intelligence doing excellent work may be permitted to skip a half-grade below the seventh; pupils of very superior intelligence may skip a half-grade without lowering the quality of their subsequent work.

F. STUDIES OF GIFTED CHILDREN IN THE HIGH SCHOOL

F1. THE ADMINISTRATION OF THE SUPERIOR STUDENTS IN THE UNIVERSITY OF CHICAGO HIGH SCHOOL

W. C. Reavis
Principal

The fetich of uniformity which is largely due to the development of the graded system in American public schools is responsible for the factory methods of education which have substituted the class for the individual as the unit of instruction and administration. As a result, that portion of the student body which deviates widely from the average inability to profit from the regular work of the school has been grossly neglected and generally ignored.

In recent years elementary schools have been active in reorganizing their subject matter and in developing more effective methods of meeting the individual needs of their student personnel. Some school systems have gone much farther than others and have adopted administrative measures, such as flexible promotions, fast and slow sections, special classes, and individual instruction, designed to encourage the recognition of individual differences and to promote individual progress.

High schools have been more static. A few have attempted to meet the situation through the classification of entering students into relatively homogeneous sections on the basis of the results of group intelligence tests and other supplementary data and the variation of the work in accordance with the rate at which the respective groups were able to accomplish it. Other schools which group their entering students in mosaic sections have sought to provide for individual differences through variation in the schedules of individual students. But, by and large, a high-school student of superior ability has had to be contented in the main with courses planned for the average and with methods of teaching designed for the group. If his potential powers have been fully tested, it was because he had the initiative to forge ahead and the will to assume the responsibility for directing his own development.

In the administration of the University of Chicago High School the superior student is recognized, and an attempt is made to fit the school to his needs. This implies (1) a method of appraising the capacity, maturity, interests, and personality of the student, (2) a flexible curriculum, (3) an appropriate technique of teaching, (4) administrative measures which will make possible the realization of the school's objectives. Each of these will be discussed in turn in the paragraphs which follow.

APPRAISING THE SUPERIOR STUDENT

It is idle to talk of providing for the superior student unless there is developed within the school a technique for finding such students and for appraising their ability. The group test of mental ability, supplemented with other factual evidence, has contributed much toward the identification of superior students.

The University High School has developed a system of testing and recording which makes available for purposes of educational diagnosis, factual information of a much wider character. A group intelligence test is given once each year to each student; achievement tests are administered by the different departments from time to time; physical measurements, medical examination, and radiograph records of the wrist bones are made on the chronological birthday of the student or as near to that date as is possible; physical and health histories are kept up to date; pedagogical records indicating special abilities, disabilities, and interests as revealed in the classroom from time to time are secured; and a rating of the student's personal qualities by each instructor who comes in contact with the student is made at the end of each year. These reports are cumulative in character and afford valuable data for diagnostic purposes when diagnosis is required.

Other facts regarding the student's past are made accessible in order that any given case may be studied in the light of its background. From the records thus available the interplay between the student and his environment can be studied and cues may be found which may lead to successful diagnosis and proper educational advice.

FLEXIBLE CURRICULUM

The curriculum is organized in unitary blocks with minimal essentials to be mastered by all members of the class and supplementary projects for those students whose powers would not be taxed if only minimal essentials were studied. The flexibility of the curricular organization permits the teacher to teach groups as such and at the same time to recognize, and to make ample provision for, individual differences. Inasmuch as superior students vary greatly in special abilities, this plan of curricular organization permits a teacher to vary the experience of the students as individuals without interfering in the least with the procedure and general responsibilities of the class. The plan of organization is obviously superior to a differentiated curriculum for a relatively homogeneous group in that it makes greater and more varied provisions for the differences of individual students. It avoids the common objection to homogeneous sectioning which is that it results in the racing of students through materials organized for typical groups rather than individuals, and in the substituting for gain in time as an end, a different and a richer experience.

APPROPRIATE METHODS

In dealing with students of different degrees of maturity, ability, and experience, and of different special abilities and disabilities, in their contacts with the various subjects of instruction, it should be recognized that the teacher cannot rely on any one general teaching technique. Each subject has its own peculiar objectives, its own psychology, and its own methods.

"In the Laboratory Schools,[1] at least five different types of teaching and learning are distinguished. To these have been given the designations science type, language-arts type, pure practice type, practical arts type, and appreciation type. Under the science type there is a sub-type embracing mathematics and language structure which we sometimes call the mathematics type and sometimes the logic type. The situation changes radically and essentially as we go from type to type. In the language-arts and pure practice the active co-operation of the teacher in the study process itself is for the most part essential. In the science type, in certain phases, the co-operation of the teacher consists in giving the student a chance to work out his own salvation. In practical arts the teacher becomes in the main a foreman, while in appreciation the teacher has to create a social situation for study of which he becomes himself a part."[2]

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[1] "Laboratory Schools" means the Elementary and High School of the School of Education, University of Chicago.

It follows, then, that the administrator who attempts to make provision for the training of superior students cannot rely on any single administrative measure, such as homogeneous sectioning, to care for all the needs of his superior student personnel. In teaching of the language-arts, pure practice, and appreciation types homogeneous grouping may be both desirable and effective, but in subjects requiring the technique of the science and practical-arts types or the mathematics sub-type other measures must be employed if the individual's interests and abilities are to be provided for fully.

Through supervised study the superior student escapes the monotony of routine and develops intellectual interests which he can pursue independently of the rest of his group. For example, if he is able to acquire mastery of the minimal essentials of a course quickly, he does not have to mark time while others labor at the task he has completed. He can undertake supplementary projects suggested by his teacher or projects of his own initiation which will broaden his experience and develop his powers.

ADMINISTRATIVE MEASURES

The University High School has attempted to develop an administrative technique which will enable its teachers to make the fullest articulation between the curriculum and the technique of teaching and the needs of individual students. The administrative office has been made the clearing house for all matters which vitally

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[2] Morrison, H. C. "Supervised study." *Sch. Rev.*, 31. Oct., 1923, 588-589.

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concern the school's student personnel. Reports and records which indicate what the individual is capable of accomplishing are made accessible to teachers as well as factual information regarding the students' special interests and abilities. Furthermore, the administrative officers assume responsibility for securing co-operation between persons and institutions concerned with the progress of students.

When it is discovered that a student is above normal and his interests and abilities are known, an attempt is made to guide him in one or more of the following ways: (1) to put him in the proper section in those departments which desire homogeneous grouping; (2) to encourage him to undertake supplementary projects in connection with courses in which he acquires mastery of the minimal essentials sooner than the average student for whom the minimal requirements were planned; (3) to encourage him in power-gaining subjects, like English composition or foreign languages in which his rate of acquisition is distinctly superior, to undertake the next course in advance while still carrying the lower course (which may be dropped when he has demonstrated his ability to progress with the upper course); (4) to encourage the student of known ability after the freshman year to undertake a heavier schedule, which may result either in an earlier graduation or a broader and richer experience; (5) to excuse students of maturity and tested ability from phases of class routine which would contribute little to their further training or development and to substitute worthy, voluntary projects; (6) to permit superior students of the senior class and in some instances of the junior class to elect junior-college courses in lieu of regular high-school courses.

HOMOGENEOUS SECTIONS

Homogeneous grouping as a method of providing for individual differences has not been employed at the University High School, except in the English and foreign language departments. It has been held by the other departments that the plan is not effective, except when the objectives sought are skills or powers. In English the grouping is made on the basis of the results of a group intelligence test and a series of preliminary achievement tests in English usage administered prior to the student's admission to the school. In foreign language two or more sections of a given grade are placed at the same hour in the schedule in order that fast and slow sections may be organized on the basis of the ability of the students to progress (transfer from group to group to take place whenever change is to the advantage of the pupil and the group.)

As a result of such grouping in beginning French classes during the past year, it was possible to select a group of nineteen very superior students who were able to earn 1½ units of credit in the year. A selected group in Latin was able to earn 2½ units of credit in two years. The effect of such grouping is most wholesome in that the school goes on record with the students as seeking to obviate the deadening influence of arbitrarily adhering to the standard of "time spent," by substituting the more rational standard of attainment.

Supplementary Projects

The only question which can be raised to the plan of providing supplementary projects as a part of the curricular organization in providing for superior students is the time-worn fallacy of the potency of credit rewards. Is it possible to get a superior student to do more than minimal requirements without credit rewards? After two years of experience in administering a system which has abolished marks and grades, the writer maintains that there are other appeals less artificial which afford a much stronger stimulus to a student. Approval for specific tasks, the challenge to give one's best, the opportunity to follow a genuine intellectual interest, the responsibility of being allowed to undertake work of one's own initiation, the privilege of making a personal contribution to the work of the course, any one of these motives is likely to be a more powerful challenge to the superior student to work at his potential level of efficiency than either school marks or excess credit rewards.

In the administration of the superior student the idea of giving nothing less than his best is kept before him as a duty and as a matter of self interest. He is told that his abilities will suffer from atrophy unless they are fully taxed. But in order that the appeal may not be too abstract, approval is generously given. When a student completes a supplementary project, in addition to the minimal essentials, which shows evidence of independent study and which maintains throughout the proper standards of English usage, a commendatory report is sent by the instructor to the principal briefly describing the project and giving the teacher's evaluation of it. The principal may mail the report to the parent or he may personally commend the pupil. In either case a copy of the report is filed with the student's cumulative record. The following samples illustrate the essential features of these Teachers' Reports:

> December 3, 1923
>
> *Period:* Nov. 26-Dec. 3 *Pupil:* E. F.
>
> E. F. deserves commendation for an excellent piece of supplementary work in planning and installing new lighting effects on the stage for the Drama Club.
>
> A. B., Instructor.

> November 23, 1923
>
> *Period:* Nov. 1-23 *Pupil:* M. N.
>
> M. N. has written a one-act play of commendable quality entirely aside from the required work and entirely on his own time. He should be commended for initiative and perseverance.
>
> C. D., Instructor.

> December 4, 1923
>
> *Period:* Oct. 1-Dec. 4 *Pupil:* G. H.
>
> G. H. has done exceptionally strong work in Modern History throughout the fall. His supplementary project, "Development of the Iron and Steel Industry in Great Britain From 1735 to 1830," is highly commendable.
>
> X. Y., Instructor.

The commendatory report gives recognition for work voluntarily done, at the time the task occupies the attention of the student. It also gives in specific terms the nature and character of the achievement, so that those who are interested in the progress of the student may know the exact character of his interests and accomplishments and may thus co-operate more intelligently in their contacts with him.

When a worthy supplementary project has been completed, the instructor concerned may send it to the school library where it is accessioned and filed in a special case for the attention of those who may desire to examine it. The prominence given to such reports becomes an added incentive to the student to put his very best effort into his project, because he is permitted to contribute in this personal way to the school's library.

Opportunity to Acquire Skill More Rapidly

In some departments, such as English or the foreign languages, in which the development of certain powers or skills is sought, progress often takes place with individuals of superior abilities at very different rates. Even though the students are sectioned in relatively homogeneous groups, the individual of superior special ability is not always properly provided for. A plan of administering such students has been put into effect in the University High School which is designed to care for the individual who is capable of acquiring skill or power much more rapidly than his class associates. In brief, the student is encouraged to undertake work in advance of his group while retaining membership in it and at the same time to attempt to cover independently the work intervening. When he is able to demonstrate that he has acquired a skill approximating that of the upper group, his membership in the lower group may be discontinued on the condition that satisfactory standing in the advanced group is maintained.

Very few students can meet a test as difficult as that described in the foregoing paragraph. Yet it is quite possible that there are a few in every school who, if given such an opportunity, would without doubt prove themselves equal to it. The school has an obligation to develop its superior students to the fullest, and it offers a poor alibi if it allows lock-step or cumbersome administrative machinery to stand in the way.

This plan has been in operation in the University High School for several years. Usually from five to ten students profit from it annually. During the past year three students in French were able to take advantage of its provisions and to complete two units of the language in one year. One student profited similarly in Spanish and one in English.

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THE HEAVIER SCHEDULE

There are relatively few students of superior ability who are satisfied merely to carry the normal load, which does not tax their full strength. Consequently, it is a common practice in many high schools to allow superior students to elect an extra subject and to accumulate additional credits which may be used to hasten graduation or to enrich the student's high-school course.

The University High School for several years has had a working agreement with the University of Chicago whereby credits earned in excess of the regular admission requirements may be applied toward advanced standing at the rate of two majors of college credit for each high-school unit offered. This arrangement has the advantage of permitting the superior student to seek his level of achievement and at the same time to retain his social contact with students of his own chronological age without suffering loss in credits earned or having to sacrifice the congenial associations of later high-school and early college years.

The amount of additional credit earned by the members of the last three graduating classes as a result of this plan is 454 units earned by 292 students. From 20 to 30 percent of the students of each class earned two or more additional units which could be applied on college standing.

SUBSTITUTION OF VOLUNTARY PROJECTS FOR ROUTINE REQUIREMENTS

In matters relating to the mastery of classroom routine it is evident that marked differences will appear in the personnel of the class, however well selected. Frequently, a talented student is able to master in a relatively short time with the minimal practice certain routine matters in usage which others acquire with difficulty. To require a student to continue such exercises after mastery has been demonstrated often results in loss of interest and the development of ineffective habits of study and work.

Instructors are therefore authorized in the University High School to permit superior students to substitute voluntary projects for routine requirements when in the judgment of the instructor

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CONCLUSION

The progress described in this study represents a mere beginning in providing for superior students in the high school, but it is a beginning. That the task is great and urgent cannot be questioned. The responsibility is administrative in character and must be accepted by every person with administrative duties in the modern high school. If tradition or cumbersome administrative machinery interfere, then they must be modified. The school has an obligation to its superior students which can neither be evaded nor subordinated. When properly discharged, society, as well as the individuals concerned, receives the benefits.

F2. DIFFERENTIATED COURSES FOR PUPILS OF SUPERIOR ABILITY IN THE J. STERLING MORTON HIGH SCHOOL

Arthur Brogue
Director of Educational Measurements, J. Sterling Morton High School, Cicero, Illinois

Since September, 1920, the pupils in the J. Sterling Morton High School, at Cicero, Illinois, have been grouped in sections which are fairly homogeneous in ability. This grouping has been done principally upon the basis of the results from group tests of mental ability, checked later by pupil performance, teacher's judgment, and individual intelligence testing. The work required from pupils of superior or inferior ability has been differentiated from that formerly required of all pupils, with highly satisfactory results in reducing failures, retaining pupils in school, and meeting the needs of the individual pupil—especially those with ability above the average. Lack of space will not permit a complete account of the differentiation between average and superior sections in all academic subjects, but a few typical cases will be given.

English

The English department has worked out differentiated courses in more detail than have other departments. A good example is that of first-year composition. During the first month all sections are given the same course, which is as follows (omitting specific directions and references to texts):

Technique

The artistic page
  See department instructions
Good form in oral composition
  Posture, voice, manner
Capitalization
  Beginning of sentence
  Proper nouns
  Proper adjectives
  Names of months, days
  Titles of books, themes, etc.

Punctuation
  Period: Declarative sentence
    Abbreviations
  Question mark
Use of dictionary
  Main part
Gazetteer
  Biographical
  Pictorial
  Addenda
Formation of definitions

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Practice

Oral theme: Class contest in telling the best possible joke, the teacher to set the pace in giving the assignment.

Written theme: Limited to one paragraph. An exciting moment from experience of pupil or member of his family. (Foreign-born children have interesting immigration experiences.)

Minimum Essentials Test

1. Written form
2. Capitalization
3. Periods
4. Question marks
5. Ability to judge where to look for words obviously belonging in certain sections of the dictionary
6. Ability to form simple definitions containing class and distinguishing characteristics

At the end of the month is given the minimal essentials test covering the points just specified. The teacher's acquaintance with the pupils' work for a month, together with the results of the minimal essentials test and other tests, makes it possible at this time to shift pupils who have been obviously misplaced, into higher or lower sections before a differentiation in work has begun.

The second month's work, which follows, shows the kind of differentiation. It will be noticed that some of the topics for the low sections are reviews of topics occurring in the first month's work; this is due to the fact that the pace during the first month has been too severe for the pupils in the low sections.

High Sections *Technique*	*Middle Sections* *Technique*	*Low Sections* *Technique*
Punctuation The apostrophe Addresses, dates Grammar Verbs Nouns Subject of verb Pronouns Predicate nominatives Object of verb Transitive and intransitive verbs	Punctuation The apostrophe Addresses, dates Grammar Verbs Nouns Subject of verb Pronouns Predicate nominatives Object of verb	Punctuation The apostrophe Addresses, dates Grammar Verbs Nouns *Insistence* upon proper form Use of dictionary Logical definition Spelling—selected from written work
Practice	*Practice*	*Practice*
Oral theme: How to make an article the pupil has actually made, or how to play a game. (Encourage use of diagrams.) Written theme: How to find some place in the pupil's own experience.	Oral theme: How to make an article the pupil has actually made, or how to play a game. (Encourage use of diagrams.) Written theme: How to find some place in the pupil's own experience.	Oral theme: How to make an article the pupil has actually made, or how to play a game. (Encourage use of diagrams.) Written theme: How to find some place in the pupil's own experience.

Minimum Essentials Test	*Minimum Essentials Test*	*Minimum Essentials Test*
1. Apostrophe: possession, contraction.	1. Apostrophe: possession, contraction	1. Apostrophe: possession, contraction
2. Comma with addresses and dates	2. Comma with addresses and dates	2. Comma with addresses and dates
3. Recognition of verbs, nouns, pronouns	3. Recognition of verbs, nouns, pronouns	3. Recognition of nouns and verbs
4. Recognition of subjects, predicate nominatives, direct objects of verbs.	4. Recognition of subjects, predicate nominatives, direct objects of verbs	
5. Discrimination between transitive and intransitive verbs		

MATHEMATICS

In mathematics two types of differentiation have been tried: enrichment of the course, and more rapid progress. Any mathematics text offers more material than is needed for the average class, but superior sections are able to cover this and additional material because they need less explanation of difficult processes, they need less drill on fundamentals, and they can handle longer and more varied assignments. An attempt is made to keep all sections together during the first month, in order to facilitate such shifting of pupils as may be necessary. More rapid progress was tried with one class, but has not been repeated because of the difficulty in obtaining *college* credit for a year's work in a subject done in less than a year's time! In this case there were ninety pupils in three sections at the same hour: forty in the high section, thirty in the middle section, and twenty in the low section. The middle and high sections had kept together in the text; the high section, however, had been doing more intensive work. At the beginning of the fourth month, it was decided to let the high section go at a faster rate. The plan was explained to the high section and all who did not care to go faster were allowed to change to the middle section. A few who had not been doing superior work in the high section were also sent to the middle section, and three who had been doing superior work in the middle section were sent to the high section. After these changes had been made, there were thirty in the high section and forty in the middle section. This high sec-

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tion then finished their text, Breslich's *First-Year Mathematics*, and began Breslich's *Second-Year Mathematics* before the end of the year. During their second year they finished the latter book and went half way through Breslich's *Third-Year Mathematics*, doing at all times stronger work than that of the average section. The class was not continued the third year, but the pupils who wish the second half of third-year mathematics will take it the second semester with a regular third-year class.

SHORTHAND

In shorthand, classes are allowed to progress as fast as their ability warrants. Some of the highest sections will do three semesters' work this year in two semesters. These pupils are not worried about receiving college credit, as it is a 'bread-and-butter' subject to them. They cover the theory more rapidly and take up dictation sooner. Pupils in low sections, who learn more slowly, may require more than a year in which to do a year's work; but pupils in all sections in shorthand are required to reach a certain rate of speed in taking dictation before a certificate is given.

MODERN LANGUAGES

In first-year French and Spanish all sections cover the same number of lessons in the grammar, but the high sections do more reading. High sections have more time for conversation, either using the vocabulary of the lesson or new subject matter as a basis for broadening the pupil's vocabulary. High sections write more original compositions; they do more reading in foreign newspapers, from which oral reports are made to the class in the language. They require less time for simple grammatical constructions and pronunciation.

AUTO THEORY

In auto theory the following differentiation is carried out:

Low section: Minimal essentials of auto theory.

Middle section: All of the above, plus about thirty percent more subject matter. This added subject matter takes up more difficult theory involved in the electricity of the auto, and a certain amount of trouble study. All of the work is covered in greater detail.

High section: All the requirements of the middle section with a more comprehensive use of other texts, reference books, advertisements, and other sources of material.

PHYSICS

In physics high sections do supplementary textbook work, solve more problems, carry on supplementary experiments, and are expected to achieve a greater accuracy in laboratory work. In the other sciences differentiations of a similar nature are carried out.

SOCIAL SCIENCE

In addition to differentiation in requirements in the different sections in social science, more advanced textbooks have been used in higher sections and easier texts in lower sections. No inconvenience is caused to the pupil if he is changed to a higher or lower section because the textbooks are furnished by the school.

It will be seen that most of the differentiation of work consists in requiring that pupils in high sections shall exceed in quality, and usually in quantity, the work of the average section. This means, for example, that a student taking modern history in a high section will spend the same length of time as the student in an average section and receive one unit of credit. There has been no saving of time—and it is a question as to whether a saving of time should be attempted in such a subject—but there has been a distinct advantage accruing to the superior student. He has been competing with other students of his own intellectual caliber, and has been doing work which challenges his capacities, instead of 'taking it easy,' as many such students will do in a class which contains pupils of too large a range of ability.

On the other hand, our experience with classes making more rapid progress in mathematics and shorthand, raises the question of the possibility and wisdom of making provision for classes of exceptional students to capitalize their ability in that manner. In such subjects as mathematics, foreign languages, shorthand, and English composition, there is a gradual increase in difficulty such

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that success in any semester's work practically requires success in the work of the previous semester. There is also a certain definiteness about them which lends itself more readily to measurement by standard tests. Since this is the case, colleges and universities should be able to make provisions for accepting units made in less than the standard time in accredited schools, and the pupil who has the ability to do three years' work in such subjects in two or two and one-half years certainly should be allowed to do it.

F3. THE NEEDS OF THE SUPERIOR PUPIL IN THE STUDY OF MATHEMATICS

E. R. BRESLICH
University High School, University of Chicago

One of the most difficult tasks in high-school teaching is to hold the class together and to reach the point of mastery with few laggards. The unusual pupil, bright or slow, at either end of the scale presents a serious problem even under skillful teaching and when every effort is made to reduce the extreme differences in rates of learning.

This is particularly true in the field of mathematics. In the teaching of a topic directed to the average pupil of the class, the bright pupil has little difficulty in following the instructor. Sometimes he is able to think ahead of the instructor. In the development of a lesson he contributes most of the thinking. During the recitation he monopolizes the time. Having understood the assignment better than his less gifted classmates, he profits proportionally from home-study. He receives all the training. Success gives him a feeling of superiority. The gap between him and his associates widens day by day. To the teacher, the bright pupil causes but little worry, while the problem of saving the slow gradually reaches the stage where its solution is impossible.

With the introduction of supervised study, the situation changes. The slow pupil's difficulties are coming to the attention of the teacher. While he gets the share of teaching he deserves, the bright pupil is left alone to struggle with his difficulties as well as he can. In this case the bright pupil feels that he is being neglected. When the work is simple, he completes it as rapidly as possible. While waiting for the other pupil to finish the required work, he is idle, he marks time and may become a disturbing factor in the classroom. The bright pupil has given some teachers sufficient trouble to cause them to drop supervised study and to return to the traditional homework-recitation procedure. In supervised study the superior pupil may become a greater problem than the slow and less gifted pupil in mass instruction.

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Experimental investigations show that in supervised study the poorer pupils make better progress than in the home study-recitation plan but that the progress of the bright pupils is retarded. In the University High School the department of mathematics tested the relative efficiency of the home-study plan and supervised study plan with two classes of approximately equal ability.[1] At the end of the period of experimentation an examination was given to both classes, the grades of which are shown in Table I.

TABLE I.—PERCENT OF PUPILS OBTAINING VARIOUS GRADES

Sections	A	B	C	D	F	Average
Supervised Study No Homework	0	6.2	37.5	25	31.2	65.5
No Supervised Study Homework	7.1	21.4	21.4	0	50.	62.8

It it seen that the higher average of the supervised study class was a result of gains made by the slow pupils. The bright pupils did not do as well as those of the home-study class. It is possible that with a special technique for the bright pupils the gain of the supervised study class would have been further increased.

Similar results are stated by Breed,[2] who carried on an experiment with supervised study in a number of schools, under scientifically controlled conditions which made it possible to arrive at a number of definite conclusions. These agreed with the results previously stated. He found that in all subjects the poorer pupils made better progress than before, and that the progress of the bright pupils was retarded. Because of the fact that the superior pupils do not develop in supervised study as well as under a home-study plan, the department of mathematics of the University High School has been working on the problem of improving the technique for the superior pupils.

First, the plan of grouping pupils according to ability was tried. Two divisions, one composed of the upper half, the other of the lower half of the group of pupils, were scheduled for the same period. The question of allowing the stronger section to proceed more rapidly than the other was considered, but it was decided to keep the two classes together, to attempt to attain only mastery of the minimal essentials in the slow class, and to give the superior class a fuller course. This made it possible to make adjustments of misplaced students at any time. To the classes, it was explained that the grouping was for their own good, that it enabled the teacher to give them the type of instruction best adapted to their needs, and that this created conditions under which greatest progress could be made by all. Although the plan of classifying pupils according to ability seemed to solve the problem of the bright pupil, it complicated matters for the slow group. Both groups soon discovered that they were classified according to ability. Some pupils who were doing well in other subjects considered it a disgrace to be in the slow section in mathematics. This caused them much unhappiness, especially when they failed to improve sufficiently to be transferred to the other class. Others developed the attitude that there was no incentive for doing their very best because it had been found that they lacked mathematical ability. An amusing case was that of two boys who had been transferred from the slow to the better class. After a few days they came to the teacher of the slow section and asked if they could not come back to him. The request for transfer from the fast to the slow section seemed so unusual that the teacher questioned them closely. He found that their real reason for wishing to come back was that they had to work to keep up with the bright pupils and preferred the easy life in the slow section.

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[1] "Teaching high-school pupils how to study." *School Review*, 20: October, 1912, 505-515.

[2] Breed, F. S. "Measured results of supervised study." *School Review*, March and April, 1919, 186-204, 262-284.

Because the method of grouping was a source of disappointment to a number of pupils in the slow class, depriving them of the enjoyment essential for success, and because of administrative difficulties in making out programs to enable these pupils to get into the proper group, the department abandoned the plan of classification and tried to find a different solution of the problem of the bright pupil. It was agreed to try the plan of allowing pupils to proceed according to their ability and at their own rates.

It was found that the rapid learners and the capable and industrious pupils mastered the essentials quickly, passed on to the next

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unit before many pupils had completed the first, and continued to gain. This raised several teaching problems. Typical errors, arising in the process of assimilation and occurring with practically all pupils, had to be taught individually rather than to the group as a whole, causing much waste of the teacher's time. It was impossible for the teacher to keep in close touch with the rapid workers. In their desire to go ahead, they became superficial, omitted difficult problems, and did inaccurate work. The need of a further modification of the plan became apparent because of the desirability that all pupils in a class in mathematics complete the study of a unit at the same time.

One of the aims of supervised study is that each pupil should master the unit independently, under the wise direction of the teacher. Being a rapid worker, the superior pupil reaches the difficult points first. He is therefore the first to call for help from the teacher, frequently without having made any attempt to overcome the obstacle without assistance. He must be made to understand that he is able to, and that he is expected to, find his way out of the difficulty, that it is for his best not to get assistance from the teacher, nor from other capable pupils, that he will be given help at the discretion of the teacher. When dealt with in this fashion, the superior pupil is kept employed while the other pupils of the class approach the difficult place and have their chance to find the solution. The class is then asked to stop working and the group receives teaching as a whole. This procedure does justice to the best pupils and keeps the class together.

It is an interesting fact that bright and rapid pupils may need to do more work to assimilate a mathematical principle than is necessary for the slow, but careful pupil. While the latter works a few problems, trying to understand and to remember every step, the former sometimes progresses rapidly but too superficially, so that he attains understanding only after having worked a large number of problems. For example, in the solution of simultaneous linear equations, tests revealed that some of the slowest pupils in the class understood the method clearly after working 4 problems, while some of those who had worked more than 10 problems did not have complete understanding of the process. Hence, in a list of problems, the superior pupils should be expected to solve a larger number and some of a more difficult type than those worked by the slower pupils. Thus, the fact that not all pupils work the same number of problems need not be of concern to the teacher.

However, in a class there are likely to be pupils who, because of ability or industry, complete the work on the fundamentals of a unit in advance of the class. These individuals are either released for work in another subject or are assigned supplementary projects in connection with their work in mathematics. For example, it happens that in a given test on a unit several pupils write a perfect paper, but that the class as a whole needs further instruction. On the day, or days, when the class is re-taught, those not needing the instruction are excused to go to the library where they may work on their special projects.

It has been seen that in supervised study in mathematics three things are done to help the superior pupils. They are taught to overcome difficulties without assistance; they are expected to do more than other members of the class; and they may carry on projects in addition to the work assigned to the class as a whole. To do this, they may occasionally be released from attending class until the group has completed assimilation.

It remains to explain more fully the nature of supplementary projects in mathematics. When the teacher feels convinced that a pupil has done the required work on the fundamental unit, he allows him or encourages him to engage in independent study. Such an investigation is more difficult to carry on in mathematics than in other subjects. Articles and books dealing with mathematical material usually contain facts and symbols with which the pupil gets acquainted only in more advanced courses than the ones he has taken. When he meets these situations, he is unable to proceed without assistance. This may happen almost at the beginning of his reading. After a fruitless struggle of hours or days to see through the difficulty, he becomes discouraged. He may give up altogether or he may exchange the project he started out with for one so simple that it represents no real study nor genuine intellectual effort. Until we have a variety of mathematical literature which can be read and understood by pupils who have reached cer-

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tain levels in the study of mathematics, pupils need the advice of the teacher during the time they are working on a project. To begin with, the topic selected must be quite specific and careful instructions must be given to make sure that the pupil understands what is expected. Definite textbooks must be mentioned in which he is to read. It may be necessary with the younger pupil to give definite page references. To him is left the task of weaving together the facts found in these references into a coherent report.

This work cannot be carried on without a suitable mathematical library. Many pupils are interested in the historical development of the subject. Hence, the mathematical library should contain books on the history of mathematics. Others enjoy the recreational phases and need to be supplied with material of this type. The journals on secondary mathematics, although written for the teacher, contain much of interest to the pupil which he can read with profit. For this purpose a library should contain the following:

Books on the History of Mathematics

Allman—*Greek Geometry From Thales to Euclid*
Ball—*History of Mathematics*
Cajori—*History of Mathematics*
Gow—*History of Greek Mathematics*

Mathematical Recreations

Ball—*Mathematical Recreations and Essays*
Jones—*Mathematical Wrinkles*
Licks—*Recreations in Mathematics*
Shubert—*Mathematical Essays and Recreations*
White—*Scrap Book of Mathematics*

Famous Mathematical Problems

Rupert—*Famous Geometrical Theorems and Problems*
Withers—*Euclid's Parallel Postulates*
Young—*Monographs*

Famous Mathematicians

Frankland—*Story of Euclid*
Smith—*Euclid, His Life and System*

Journals

School Science and Mathematics
The Mathematics Teacher

Other Books of Interest

Branford—*A Study of Mathematical Education*
Brewster—*Common Sense of the Calculus*
Bruce—*Some Noteworthy Properties of the Triangle and Its Circles*
Calhoun—*In Algebra Land*
Carus—*Foundation of Mathematics*
Carson—*Mathematical Education*
Conaut—*The Number Concept*
Fine—*Number System in Algebra*
Jackson—*Sixteenth Century Arithmetic*
Manning—*Fourth Dimension Simply Explained*
Morris—*Geometric Drawing for Art Students*
Sykes—*Problems for Geometry*
Thompson—*Calculus Made Easy*
Whitehead—*Introduction to Mathematics*

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F4. PROVIDING FOR SUPERIOR STUDENTS IN THE SOCIAL STUDIES

HOWARD COPELAND HILL
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In the teaching of the social studies in the University of Chicago High School provision is made for superior students in a variety of ways. Three of these will be described in this article. They are as follows: first, exemption from requirements made of the class as a whole; second, opportunity for wide reading of a supplementary character; third, provision for elementary research problems and enterprises. Each of these will be discussed in turn.

EXEMPTION FROM ROUTINE REQUIREMENTS

Class requirements in the social studies in the University High School fall into two main categories: first, mastery of given subject matter—to be described later; second, mastery of certain skills which are useful and at times essential for success in intellectual undertakings.

Ability to do various types of written work with a fair degree of excellence occupies an important place among these skills. The making of analytical outlines is one of the types to which systematic attention is given. Beginning with Community Life, the basic course in the social-science sequence, and continuing through the other courses given in the department, an effort is made to teach pupils to think straight, to discover the manner in which an author builds up his discussion of a topic, and to discriminate between ideas of major importance and those of minor importance. In the accomplishment of these ends the analytical outline has proved a most effective device. No pains are spared in teaching pupils to master it.

From the first, differences appear between the members of a class in the doing of this kind of work. Occasionally, a few pupils are able to master in a relatively short time the principles involved in the making of analytical outlines: namely, discriminating between major and minor ideas, the grouping of the minor (and supporting) details under appropriate heads, and the arrangement of the various divisions in proper sequence. The majority of pupils, however, learn to apply these principles only after long and patient effort.

In so far, then, as instruction in the making of outlines has as its objective the acquisition of skill, the need for the requirement disappears as soon as a pupil has demonstrated his ability. Accordingly, as the work proceeds, pupils are told that the making of a satisfactory outline of one section of a given chapter or of one part of a unit will exempt them from the making of outlines of the remaining sections of the chapter or of other parts of the unit. After a pupil has given a number of such demonstrations, he is excused from all outline work which has for its purpose the inculcation of the skill in question, and he is required henceforth to make only such outlines as are considered needful for the mastery of the subject matter.

The same principle applies in the making of summaries, digests, and other kinds of notes: pupils who demonstrate their ability are excused from the obligation. In short, pupils who show that they have mastered a device are no longer required to study it. It should be added that pupils who have once learned the value of these devices seldom discontinue their use even when no requirement is made.

Social-Science Sequence and Organization of Material

So much by way of explanation of the first provision for superior students in the social sciences, namely, exemption from routine requirements exacted from the class as a whole. Before describing the other two provisions mentioned at the beginning of the article, it is necessary to give the social-science sequence in the University High School and to explain briefly the way in which the subject matter of the various courses is organized.

The sequence of social studies in the University High School is as follows: first, "Community-Life English"—a combination course in social science and English comprising an introduction to the study of society; second, "Survey of Civilization"—a course in early European and American history, covering, in a series of cross-sectional studies, the history of mankind from the dawn of civilization to, approximately, A. D. 1750; third, "Modern History"—a unified course in American and European history, covering, roughly, the period from the middle of the eighteenth century to the present time; and fourth, "Modern Problems"—a course in the fundamental principles of political science and political economy with special consideration to present-day problems in which these principles are illustrated or involved.[1]

The material in these courses is organized in units. Each unit requires for the great majority of pupils from three to five weeks of study for mastery. When the time comes for study, each pupil is supplied as a rule with mimeographed guidance sheets on which are given the minimal essentials of the unit, together with specific references to the books, magazines, and pamphlets in which a discussion of the minimal essentials may be found. The classroom is regarded primarily as a place for study, rather than as a place for recitation; and supplementary and reference books are assembled in the room for the use of the pupils during the class period. In mastering the minimal essentials pupils are usually required to make outlines and take notes, with the exceptions noted above. Assimilation and teaching tests are given from time to time. Problems which cause difficulty and which require elaboration are occasionally taken up in class for explanation and discussion.

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[1] The organization of these courses as well as a description of various phases of the instructional technique which is followed can be found in these references: first, Community-Life English, in W. G. Kimmel's "Testing pupils' study progress in community-life English," *Studies in Secondary Education*, 2: March, 1924; and H. C. Hill's "Opportunities for correlation between community life and English," *School Review*, 30: January-March, 1922, 24-36, 118-126, 175-186; second, Survey of Civilization, in A. F. Barnard's "A course in survey of civilization," *Studies in Secondary Education*, 1: January, 1923, 92-102; third, Modern History, in H. C. Hill's "A course in modern history," *ibid.*, pp. 103-115; fourth, Modern Problems, in H. C. Hill's "Experiments in advanced courses in social science for high-school seniors," *Studies in Secondary Education*, 2: March, 1924. The relation between these courses is explained in "Educational economy in the reorganization of the social studies," *Twenty-second Yearbook* of this Society, Part II, 1923, 111-125, and in "An attainable program of social studies for the high school," *Historical Outlook*, 13: December, 1922, 353-356.

Naturally, pupils whose work is of such quality as to entitle them to be excused from certain class requirements for the reasons previously explained or who, as the result of superior native endowment, better preparation, or more intensive application, master the unit in less time than their classmates, are free for other undertakings while the rest of the class is still engaged in assimilating the minimal essentials. It is at this time that the second and third provisions made for such pupils come into service.

OPPORTUNITIES FOR WIDE SUPPLEMENTARY READING

The second provision, it will be recalled, is the opportunity to do wide reading of supplementary character. In the Community-Life course—a course in which all the pupils do extensive reading—those who master the required work in a unit before their classmates have increased opportunity for such activity. In a unit like "Work and the Worker," for example, they may continue their reading of such personal narratives as Mark Twain's *Roughing It,* James J. Davis' *The Iron Puddler,* Andrew Carnegie's *Autobiography,* or of such imaginative works as Rudyard Kipling's *Captains Courageous,* H. S. Latham's *Jimmy Quigg, Office Boy,* Victor Hugo's *Toilers of the Sea,* Kate Douglas Wiggin's *Polly Oliver's Problem,* or William Dean Howells' *The Rise of Silas Lapham.* In order to stimulate and guide this reading, rich and varied book-lists are furnished with each of the units comprising the Community-Life course.

In the history courses, opportunities for wide supplementary reading are also provided. In "Survey of Civilization" pupils interested in ancient Egypt read extensively in Maspero's *Life in Ancient Egypt and Assyria,* Breasted's *History of Ancient Egypt,* and Irman's *History of Ancient Egypt,* and in such historical fiction as Eber's *Uarda,* and *An Egyptian Princess.* In Modern History, such supplementary reading is usually in the realm of reminiscences, diaries, memoirs, historical novels, and the more interesting biographies and histories.

The book-list on the "Slavery Controversy," for example, comprises twenty-eight biographies and special historical works, twenty-nine memoirs and personal narratives, and twenty historical novels.

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In connection with this unit one girl read Dawson's *A Confederate Girl's Diary*, Eggleston's *A Rebel's Recollections*, Humphreys' *Four Months in Libby*, Putnam's *A Prisoner of War in Virginia*, Fox's *The Little Shepherd of Kingdom Come*, Page's *Two Little Confederates*, Stowe's *Uncle Tom's Cabin*, Libby's *Stories, Letters, and Speeches in the Life of Lincoln*, and portions of Dittenhoefer's *How We Elected Lincoln* and Charnwood's *Abraham Lincoln*.

In the courses in history, as well as in the course in Community Life, pupils do considerable reading outside the textbooks as an integral part of the regular work. In "Modern History," for example, classes which were asked to keep a record of the reading done during the three weeks spent on the last unit, "The World War and World Reconstruction," reported an average of 655 pages for each pupil. Outstanding pupils read double and triple this amount.

PROVISION FOR RESEARCH PROBLEMS AND ENTERPRISES

As a rule, the most valuable type of supplementary reading seems to be that which originates in, and is inherent to, some elementary research problem or enterprise. This, it will be remembered, constitutes the third provision for superior students to be discussed in this article.

In addition to the minimal essentials and the reference citations which are on the guidance sheets furnished to the pupils at the beginning of the study of a unit, there are ordinarily suggestions for supplementary projects, or undertakings. For example, the guidance sheet for the "French Revolution" (the second unit in Modern History) is as follows:

THE FRENCH REVOLUTION

A. Minimal essentials:

1. Conditions under the old Régime: social classes, autocracy and inefficiency of government, privileges and abuses.
2. The intellectual revolution: discoveries in the natural sciences and their influence; philosophers in the social sciences—Voltaire, Montesquieu, Rousseau.
3. French revolution, 1789-1795: financial troubles of the government; influence of the American Revolution; epochal events—Oath of the

Tennis Court, fall of the Bastile, Declaration of the Rights of Man, chief reforms of the National Assembly and the National Convention.

4. Napoleonic era, 1795-1815: outbreak of war in Europe; the rise of Napoleon; the spread of revolutionary ideas and reforms throughout Europe; the Continental System and the fall of Napoleon; the effect of events on the United States—political factions, Citizen Genet, XYZ affair, Alien and Sedition Acts, *Quasi* war with France, purchase of Louisiana, the Embargo Policy, the War of 1812.
5. Heritage of the Revolution: political, social, intellectual.

B. Supplementary projects or studies:

1. The benevolent despots (one)
2. The famous leaders of the Revolution (one)
3. The Reign of Terror (some phase)
4. The career of Napoleon (some phase)
5. Effects of the Continental System on France or England
6. Napoleon's reforms in Spain
7. Effects of the Embargo policy on New England (or on one of the European countries)
8. Napoleon's work in peace
9. Relation between the Industrial Revolution and Napoleon's downfall
10. Revolutionary reforms in Prussia, Spain, or Italy.

The supplementary projects listed above are offered merely by way of suggestion; as a rule, the most valuable enterprises are those which originate with the pupils themselves. During the study of a unit there is often some phase not covered by the minimal essentials which arouses interest and which leads to special investigation. In these instances it is customary for the pupil to have a conference with the teacher before beginning research; the approval of the teacher is, in fact, expected before detailed study is undertaken. By this means time and effort are saved on projects not germane to the unit or upon which material may be either inadequate or inaccessible.

A rejection of a study proposed by a pupil is seldom necessary, but a modification of the original proposal, usually by way of delimiting the scope of the inquiry, frequently results from the conference. Thus, in "Modern Problems" a boy who proposed to make a study of "Procedure in Foreign Legislative Assemblies" (the unit under way was "The Making of Law") was quick to see the advantage of confining his efforts to "Legislative Procedure in the British Parliament."

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When a pupil has selected a subject, he usually begins work by making a rapid preliminary survey of its scope and character as found in some of the brief accounts or narratives. He then makes a list of the material he can find and prepares a rough outline to serve as a guide in his further work. His bibliography and outline are sometimes submitted to the teacher for suggestion and correction, although as a rule a pupil proceeds with his work independently unless he encounters some obstacle which he cannot surmount. In this case he consults with the teacher, who gives him whatever counsel or assistance seems needful. It should be said, however, that for the most part the pupils who undertake supplementary projects master their own difficulties and solve their own problems, and the teacher generally limits his assistance to suggestions or thought-provoking inquiries.

When completed, a supplementary enterprise ordinarily takes the form of a carefully-written exposition of the topic. The longer papers are usually supplied with preface, bibliography, and footnote citations to the sources of information which were used. The best of the papers show wide and thorough reading and give evidence of thoughtful preparation and painstaking composition. Their extent and merit differ widely in accordance with variations in the character of the topics, the time devoted to the study, and the age, capacity, and interests of the pupils concerned.

Some of the papers contain but a thousand words; others contain as many as fifteen or twenty thousand words. Some are the outcome of an interest aroused early in the year and continued during an entire semester; others are the result of the work of two or three weeks. Some present but a single and narrow phase of a topic; others give a rounded-out and fairly exhaustive treatment.

Illustrations of Supplementary Projects

Opportunities for supplementary projects of a rich and varied nature are especially abundant in the course in "Community Life." Among those which have grown out of the reading of historical and travel literature may be mentioned the following: "The Marquesans: a Primitive Community," "Marriage Customs in Other

Lands," "The Sports and Fetes of Japanese Children," "Oriental Rugs." Representative of local studies and first-hand investigations are papers on "By-Products of Coke," "The Making of Automobile Wheels," "The Halstead Street Community," "The Chicago Water Supply," "Chicago Artists and Their Work," "Art Color Printing."

From the reading of imaginative literature have come such studies as "Schools of Old England as Represented by Charles Dickens," "The Detective in Fiction," and "The Unfortunates as Treated in Literature." The first of these had its origin in the study of the unit "The School" and was a product of the reading of different novels of Dickens in which are pictured the schools of England of the early nineteenth century; the second, which developed in connection with the unit "Protection," was a comparison between fiction detectives, with the discriminating conclusion that "after all it is the case rather than the detective that makes for interest" in a detective story. The third paper originated in the unit "The Handicapped" and was the outgrowth of the reading of Dickens' *Oliver Twist*, and *Little Dorrit*, Hugo's *Les Misérables*, Collins' *Hide and Seek*, Eliot's *Romola*, Keller's *The Story of My Life*, and *The World I Live In*, Cooper's *The Deerslayer*, Kipling's *The Light That Failed*, Bulwer-Lytton's *The Last Days of Pompeii*, and Brontë's *Jane Eyre*. In his paper the pupil showed how these authors utilized and treated such themes and materials as crime and criminals, the blind and the deaf, the feeble-minded, and the insane.

Projects of a statistical nature, the chief outcome of which is the making of graphic charts of various sorts, have proved engrossing to some pupils. As examples of such work—chiefly the product of the courses in "Community Life" and "Modern Problems"—may be cited the following: a survey of two Chicago newspapers to discover the relative amount of space devoted to the subject of crime and law-breaking; a survey of two Chicago newspapers to find the relative space given to recreation and civic beauty; a survey to find the relative space given to athletics and

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other school activities in the school daily paper; a statistical study of the number of people killed in Chicago by automobiles since January 1, 1923—age, occupation, nationality, section of city; a detailed study of the efficiency of traffic regulations in through streets; a chart showing the organization of the federal judiciary.

As typical of the supplementary enterprises carried out in "Modern History" are papers on "The Agricultural Revolution;" "Eli Whitney, His Life and Inventions;" "The Early Industrial Revolution in America;" "George Jacques Danton;" "The Boyhood and Youth of Napoleon;" "Analytical Historical Study of *Les Misérables, Ninety-Three,* and *A Tale of Two Cities;*" "Development of the Iron and Steel Industry in Great Britain From 1735 to 1830;" "The Red River Campaign;" "The Last Invasion of Missouri;" "Lincoln's Attitude on Slavery Questions as Illustrated in His Speeches." Students have also prepared large wall maps for use in the classroom.

In "Modern Problems," topics which have been investigated include "Child Labor," "The Rise of the British Parliament," "The Canadian Executive," "The British Cabinet," "Presidential Appointments and Senatorial Courtesy," "English Judicial Organization and Procedure," "The Single Tax as Advocated by Henry George."

PURPOSE OF PROVISIONS FOR SUPERIOR STUDENTS

The three provisions for superior students which have been described in this article have for their main purpose the cultivation of genuine intellectual tastes and abilities. The exemption of individuals from routine requirements of which they have demonstrated their mastery is educational economy; exemption also serves as a gateway for the achievement of intellectual desires which are oftentimes impeded or made impossible of realization when such requirements are exacted.

Opportunities for wide supplementary reading, the second provision, has proved a means both of arousing and of gratifying mental curiosity and intellectual interests.

The elementary research project, the third provision, has introduced pupils to the work of the scholar and has contributed to a genuine appreciation of learning.

In short, the three provisions for superior students seem to have promoted intellectual achievement and to have resulted in an enrichment of life.

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SECTION III—BIBLIOGRAPHY

CHAPTER XIII

ANNOTATED BIBLIOGRAPHY ON GIFTED CHILDREN AND THEIR EDUCATION[1]

Compiled by
T. S. Henry
Western State Normal School, Kalamazoo, Michigan

1. Adler, Martha. "Mental tests used as a basis for the classification of school children." *J. Educ. Psych.*, 5: 1914, 22-28.

This article aims to prove by the results of two experiments that the Binet test forms an excellent basis for the classification of young pupils from three standpoints: the pupil's, the teacher's, and the supervisor's.

2. Alexander, J. M. "Binet-Simon test in practical use in the public schools of Hinsdale, Illinois." *Elem. Sch. Jour.*, 21: October, 1920, 146-48.

Fifty-three first-grade pupils were tested and rearranged on the basis of their ability in three sections, the best of which did extra work. Also special classes in other grades were tested and handled in accordance with the results.

3. Aley, J. A. "Care of exceptional children in the grades." *Proc. N. E. A.*, 1910, 881-886.

Explains the division of exceptional children into four groups. Factors in the success of the teacher are enumerated.

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[1] The main portion of this bibliography has been supplied by Dr. Henry. For valuable assistance in preparing the annotations, acknowledgment is due to Miss Margaret Joseph, graduate student in the University of Michigan, and to Frank Whitehouse, Research Assistant, School of Education, University of Michigan. Several titles, with their annotations, have also been taken from the *Annotated Bibliography Dealing With the Classification and Instruction of Pupils to Provide for Individual Differences*, Bulletin No. 16, 1923, Bureau of Educational Research, College of Education, University of Illinois, prepared by Charles W. Odell, to which the reader is referred for further references on cognate topics.—*Editor.*

4. **Allen**, R. D. "The uses of intelligence tests in educational administration in the Providence schools." *Sch. and Soc.*, 18: Sept. 22, 1923, 335-339.

Discusses the advantages of acceleration classes. Meets the ordinary objections to acceleration as opposed to 'enrichment.'

5. **Almack**, J. C., and **Almack**, J. L. "Administrative problems connected with gifted children." *Educ. Admin. and Superv.*, 8: March, 1922, 129-136.

A study of superior children in the junior and senior high school of Eugene, Oregon. School progress conditioned by the home.

6. **Almack**, J. C., and **Almack**, J. L. "Gifted pupils in the high school." *Sch. and Soc.*, 14: Sept. 24, 1921, 227-228.

Shows that about 8 percent of the six upper grades possess superior ability discoverable thru tests. Conditions surrounding superior pupils are given.

7. **Almack**, J. L. "Superior types in the high school." *Education*, 42: 1922, 352-8.

Results on 51, or 8 percent, of 776 pupils in Grades 7 to 12 at Eugene, Oregon, selected by mental tests, physical and medical examinations, and supplementary data. Ten case studies given. Conclusions given.

8. **Anderson**, J. E. "The intelligence of a highly selected group." *Sch. and Soc.*, 16: 1922, 723-725.

Results of Army Alpha given to the pupils of a private preparatory school for boys show them much superior to high school pupils. In general, in each year-group, 85 percent exceed the median for high school pupils of the same year-group. Practically all these pupils come from families economically and socially successful.

9. **Anon.** "A class of exceptional children." *Sch.*, 28: June 7, 1917, 409.

10. **Anon.** "Three university freshmen in knickerbockers." *Lit. Dig.*, 27: No. 7, Nov. 13, 1922, 66-69.

Biographies of Fred Santee, Herbert Hoffleit, and Edward Hardy, University prodigies, possessed of supernormal intelligence but not freaks nor 'sissies.'

11. **Armentrout**, W. D. "Grouping pupils by intelligence tests." *Sch. Rev.*, 28: April, 1920, 249-51.

Another account of procedure in the Lawrence, Kansas, Junior High School.

12. Armentrout, W. D. "Classification and promotion of pupils." *Education*, 42: April, 1922, 506-12.

A discussion of several flexible plans. Advocates seven, eight, and nine year courses for the elementary school with classification based upon intelligence, physical and educational tests, school marks, and teachers' estimates.

13. Averill, L. A. *Psychology for Normal Schools.* Houghton Mifflin, Boston, 1921. 312-320.

14. Badanes, Julia E. *The First Practical Steps in Selecting Gifted Children in a Large City School.* Continental Ptg. Co., N. Y. 1921.

Brief history of testing with sociological and pedagogical significance. The aims of and the opportunities for the selection of gifted children.

15. Baer, J. A. "Individual differences among pupils. Cleveland, Ohio; *Cuyahoga County Public Schools*, 1922. 28p.

A general discussion of the individual differences that exist, followed by suggestions as to different bases and plans of classification and what the teacher can do to look after individual differences in the different subjects. This is followed by a short bibliography.

16. Bagley, W. C. "Educational determinism; or democracy and the I.Q." *Sch. and Soc.*, 15: April 8, 1922, 370-84. *Educ. Admin. and Super.*, 8: May, 1922, 257-72.

A strong plea against classifying or instructing pupils according to their I.Q.'s.

17. Bagley, W. C. "Educational determinism again: A rejoinder to Professor Whipple's reply." *Sch. and Soc.*, 16: August 5, 1922, 141-44.

A further argument against the use of intelligence test results for classifying school children.

18. Bagley, W. C. "Professor Terman's determinism: A rejoinder." *Jour. of Educ. Res.*, 6: December, 1922, 371-85.

An answer to Terman's criticism of Bagley's address on Educational Determinism.

19. Baker, A. *La Supériorité Intellectuelle et le Nevrose.* There de Madeane, Montpellier, 1921.

20. **Baldwin, Bird T., and Stecher, Lorle I.** "Additional data from consecutive Stanford-Binet tests." *J. Educ. Psych.*, 13: Dec., 1922, 556-560.

Confirms previous findings that the I.Q. remains sufficiently constant for groups but not for individuals. The superior curves show fluctuations at adolescent ages indicative of the earlier mental development of these children.

21. **Baldwin, Bird T., and Stecher, Lorle I.** *Mental Growth Curve of Normal and Superior Children.* (*University of Iowa Studies in Child Welfare, V. 2, No. 1.*) Iowa City: State University of Iowa, 1922. 61.

Gives the results of retests with Stanford-Binet of 143 normal and superior children of 5 to 14 years, tested from 2 to 5 times. The I.Q. curve is a practically horizontal line for both superior and normal groups and for both sexes; with increases resembling early adolescent spurts in physical-growth curves. Conclude that the present scale is not well suited to measurement of mental growth.

22. **Barnard, F. J.** "Let pupils be so classified as to allow unrestricted progress or unlimited time, according to ability." *Addresses and Proceedings of the National Education Association*, 38: 1899, 163-70.

An account of the Seattle plan after it had been in operation eight years. Data are given for over 7000 pupils enrolled in four parallel tracks. The plan appears to have been successful.

23. **Bartlett, Pres., Hobart College.** "Honors plan at Hobart College." *Sch. and Soc.*, 17: June 9, 1923, 630.

Henceforth students at Hobart having exceptional mentality, initiative, and qualifications for leadership will be given a wide range of freedom. Comprehensive examinations given later. Special honors.

24. **Barton, J. W.** "School organization on an objective basis." *Educ. Admin. and Super.*, 6: April, 1920, 187-97.

In Elk River, Minnesota, 323 pupils in grades one to twelve were tested with the Kansas Silent Reading and an opposites test. Thirteen percent were given extra promotion on the basis of test results and of these all but three made good. Not a single one was injured physically.

25. **Bates, W. C.** "*Annual Report of the School Committee and the Superintendent of Schools.*" Cambridge, Massachusetts, 1908. 45-51.

A description of the Cambridge double-track plan. Data are given for seventeen years' operation showing that on the whole the more rapidly pupils progressed through the grades the better marks they made in high school.

26. **Becht, A. A.** "Bright pupils and dull pupils." *J. Educ.*, 79: 1914, 395-6.

Necessity for proper diagnosis considering home and school environment, personal characteristics, and outside interests. Batavia plan helps in the administrative problem.

27. **Bell, J. C.** "The gifted child." *Jour. Ed. Psych.*, 11: April, 1920, 229-231.

A uniform curriculum will not suffice. Each child a potential contributor to society.

28. **Bennett, H. O.** "Developing leadership in the high school." *Ed.*, 43: Oct., 1922, 107-115.

29. **Bennett, H. O.,** and **Jones, B. R.** "Leadership in relation to intelligence." *Sch. Rev.*, 31: Feb., 1923, 125-128.

A study of 29 pupils attending Rochester Shop School. Intelligence ratings by Otis Group Intelligence Scale compared with estimates of leadership indicate that *there is a positive correlation between intelligence and leadership.*

30. **Berkhan, O.** "Das Wunderkind, Christian H. Heineken." *Zeits. f. Kinderforschung*, 15: 1910, 225-229.

31. **Berkhan, O.** "Otto Pohler, das frühlesende Braunschweiger Kind." *Zeits, f, Kinderforschung*, 15: 1910, 166-171.

32. **Berle, A. A.** *Teaching in the Home.* Moffat, Yard and Co., 1915.

33. **Berry, C. S.** "Special classes in Michigan for mentally exceptional children." *Rept. Supt. Pub. Instr. Mich.: 1914-15*, especially 57-75.

34. **Biddle, Anne E.** "The superior group." *News Letter*, 17: May, 1923, 3-4.

A brief account of the grouping by ability in the high schools of a certain city during the last several years, with individual accounts of a number of bright pupils. Superior pupils were selected by the judgment of the teachers, verified by intelligence tests. The writer is heartily in favor of the plan.

35. Bliss, D. C. "The application of standard measurements to school administration." *Fifteenth Yearbook* of this Society, Part I: 1916, 69-78.

Standard tests show facts and general tendencies in a school system. Superintendent can see how effectively his plans are functioning. Montclair, N. J.

36. Boggs, Anita U. "A plea for the forward child." *The Child,* 2: Oct. 1911, 45-47.

Specific cases show that forward child is unsuited to present system. Skipping dangerous. Retardation brings misuse of energies.

37. Bolton, F. E. "Public education of exceptional children. *Educ. Rev.,* 44: 1912, 63 ff.

38. Book, W. F. *The Intelligence of High School Seniors.* Macmillan, 1922. Consult index under 'Brightest Seniors,' 'Conservation,' and 'Talent.'

39. Boston, Mass. School Committee, *Annual Reports,* 1913, 1914.

40. Branson, E. P. "An experiment in arranging high-school sections on the basis of general ability," *Journal of Educational Research,* 3: January, 1921, 53-55.

In the Long Beach, California, High School, freshmen were grouped in English according to their scores on the Otis scale. This scale appeared to select inferior pupils better than superior ones, although it was fairly efficient in both respects.

41. Breed, F. S., and Breslich, E. R. "Intelligence tests and the classification of pupils. II." *School Review,* 30: March, 1922, 210-26.

An account of an experiment in the University of Chicago High School in which it was found that Otis tests results divided pupils better than measures of their ability in arithmetic. The conclusion reached was that no test gives a reliable basis for permanent classification.

42. Brehm, J. J. "Variation in the treatment of different groups." *Ninth An. Sch. Week Proc., Univ. Penn. Bull.,* 23, No. 1, 248-252.

In the junior high school of Harrisburg pupils are grouped according to their previous records. The school is thoroughly committed to this plan.

43. **Breitweiser, J. V.** "The case for the gifted child." *Col. Sch. J.*, 28: April, 1913, 20-22.

44. **Broadus, E. K.** 1914. "Genius at school." *Atlantic Monthly.* 93: 1914, 280-283.

45. **Brooks, S. S.** "Some uses for intelligence tests." *Jour. Educ. Res.*, 5: March, 1922, 217-38. *Improving Schools by Standardized Tests.* Boston: Houghton Mifflin Company, 1922, 96-123.

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46. **Brown, S. W.** "Some experiments in elementary school organization." *Add. and Proc. N. E. A.*, 51: 1913, 458-463.

The chief point made is an argument for individual progress in each subject at the rate best suited to the pupil.

47. **Brown, William.** *The Measurement of Intelligence in School Children.* Br. Assn. for Advan. of Science, London. Report, 80: 1910.

48. **Bruce, H. A.** "New ideas in child training." *Amer. Mag.*, 72: July, 1911, 286-294.

Summary of remarkable results in the education of seven well known prodigies. Advice given by their parents to others.

49. **Bruce, H. A.** "Lightning calculators." *McClure's Mag.*, 39: 1912, 586-596. Summary in *Lit. Dig.:* Sept. 28, 1912.

Ability of numerous mathematical prodigies due to early concentration on calculation. Teachers should guard against excessive development in one field.

50. **Bruce, H. A.** "Story of Karl Witte." *Outlook,* 100: 1912, 211-218.

Bruce attempts to prove that Karl Witte's mental development is the result of home training. A child is not robbed of his childhood, if education is begun very early.

51. **Buckingham, B. R.** "Mental and physical age in relation to school administration." *J. Ed. Res.*, 1: Feb., 1920, 139-143, esp. 143.

Special provision for the gifted almost non-existent. Often they are classed with the dull. Should be freed from ordinary school training.

52. **Buckingham, B. R.** "Suggestions for procedure following a testing program. I, Reclassification." *Jour. of Educ. Res.*, 2: December, 1920, 787-801.

States that intelligence tests alone are not a safe guide for promotion but should be supplemented by subject-matter tests and measures of non-intellectual qualities.

53. **Burk, Caroline F.** "Promotion of bright and slow children." *Educ. Rev.*, 19: 1900, 296-302.

Report of the Santa Barbara flexible promotion thru A, B, and C grouping. Shortcomings of plan enumerated.

54. **Burk, Frederick.** "Every child a minor vs. the lockstep. A suit in equity." *Monograph C.* San Francisco State Normal School, Fresno, 1915.

A description of individual instruction in the training school for practice teachers. Each pupil goes at his own pace and promotion is made at any time.

55. **Burkard, W. E.** "Grouping by ability in the Robert Treat Junior High, Newark." *News Letter*, 19: April, 1921, 4-5.

In Newark there were accelerated, normal, and retarded groups in grades I-IX based on measurements by a modified form of the Binet Scale. The same course of study was followed but at different rates. The plan appears to have given satisfaction.

56. **Burnell, Elizabeth F.** "Instruction in mathematics for gifted pupils." *Ped. Sem.*, 24: 1917, 569-583.

Survey of schools shows lack of provision for the gifted due to lack of common objectives. Problems tabulated and suggestions made.

57. **Burt, H. E., Chassell, Laura M., and Hatch, Elizabeth M.** "Efficiency of instruction in unselected sections in elementary psychology compared with that in sections selected on the basis of intelligence tests." *J. Ed. Psych.*, 14: March, 1923.

58. **Bush, Emma D.** "An experiment in various methods of teaching bright and dull sections of the seventh grade." *J. Educ. Res.*, 8: Sept., 1923, 113-121.

Describes in detail several 'projects' and shows the differences in the ways in which these were attacked by the two sections.

59. **Buswell, G. T.** "The school treatment of mentally exceptional children." *El. Sch. Jour.*, 23: May, 1923, 683-693.

60. Callihan, T. W. "An experiment in the use of intelligence tests as a basis for proper grouping and promotions in the eighth grade." *El. Sch. Jour.*, 21: February, 1921, 465-69.

Almost 300 eighth-grade pupils were divided into sections according to ability. The basis was a combination of results from the Illinois General Intelligence Scale, Monroe's Silent Reading Test, and to some extent teachers' estimates and marks.

61. Cambridge, Massachusetts, School Committee. *Annual Reports*, 1908, 1910.

62. Cantley, E. "The precocious child." *The Child*, 9: August, 1919, 481-486.

Discusses physical, sexual, and mental precocity.

63. Carothers, Willis H. "The super-normal child." *Teaching*, 5: Nov., 1920, 20-27.

64. Chrisman, O. *Paidology; the Science of the Child. The Historical Child.* Boston: Badger, 1920. 471.

65. Christenson, D. H. "Changes in the course of study and school organization to meet the varying capacities of children." *Proc. N. E. A.*, 1912, 355-368.

Especial reference made to junior high-school classes for subnormal and superior children.

66. "Classification of pupils according to mentality." *The Sch. Mag.*, 3: April, 1921, 196-97.

In a Buffalo school A, B, and C groups were formed in grades VI-VIII according to the average of Otis scores, teachers' marks, and an average mark. The plan appears to have been successful.

67. "Classification of pupils in Miami, Arizona." *El. Sch. Jour.*, 22: June, 1922, 727-29.

When pupils were classified on the basis of mental tests, the number of failures was reduced and much money saved.

68. Clerk, F. E. "The Arlington plan of grouping pupils according to ability in the Arlington High School." *Sch. Rev.*, 25: 1917, 26-47.

Homogeneous grouping of pupils with possible changes every two months. Work differentiated. Claims for the plan, objections against, and results secured.

69. CLERK, F. E. "Providing for individual differences by grouping by abilities. Organization and practical working of the plan." *Eighth An. Sch. Week Proc.*, Univ. Penn. Bull., Vol. 21, No. 37, Phila.: June 18, 1921, 243.

An account of procedure in Winchester, Va., in which teachers' judgments, school marks, achievement and intelligence tests, etc., are used in placing pupils. Accelerated, normal, and slow groups are formed. Cautions given.

70. CLEVELAND, ELIZABETH. Report of Director of the Special Advanced Class. *Annual Report*, Board of Education, Detroit, Mich., 1916, 94.

71. CLEVELAND, ELIZABETH. "Detroit's experiment with gifted children." *Sch. and Soc.*, 12: September 11, 1920, 179-83.

The best five percent of seventh- and eighth-grade pupils are selected and placed in special classes. The first basis of selection was the teachers' judgment, later the Binet Tests were used, and, finally, group tests. The pupils selected gain a little time and take an enriched course.

72. CLEVELAND, ELIZABETH. "Some further studies of gifted children." *Jour. Educ. Res.*, 4: Oct., 1921, 195-199.

Three 7th- and 8th-grade gifted classes in Detroit. Results as shown by comparison with a normal group.

73. CLOTHIER, R. W. "Problems of retardation and acceleration." *Ariz. Teacher and Home J.*, 10: May, 1922, 14-19.

74. COBB, MARGARET V., AND COLLABORATORS. "The special opportunity class for gifted children." Public School 165, Manhattan. *Ungraded*, 8: March, 1923, 121-128.

75. COLE, L. W. "Prevention of the lockstep in the schools." *Sch. and Soc.*, 15: Feb. 25, 1922, 211-217.

An account of the use of the Binet, Cole and Vincent tests in the first grade. It is shown that first grade pupils are not a homogeneous group and that there is a great difference between the best and the worst entering the first grade. States that classes should be organized on a mental-age basis.

76. COLLICOTT, J. G. "The bright pupil." *Proc. N. E. A.*, 1915, 457-462. (Discussion, 462-466.)

A discussion of special methods of providing for the exceptionally bright. Selection and classification discussed also.

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77. Cooper, H. E. ''Another study of retardation.'' *Educ. Admin. and Superv.*, 5: April, 1919, 177-183.

The experiment discussed shows that some should graduate early and others late.

78. Correspondent. ''The study of gifted children.'' *Sch. and Soc.*, 13: June 18, 1921, 694-695.

Discussion of use of money from Commonwealth Fund (N. Y.) placed in charge of Lewis Terman to further study of the gifted. Another fund for character development and social hygiene.

79. Corson, D. B. ''Classification of pupils.'' *Ed. Admin. and Superv.*, 6: Feb., 1920, 86-91.

80. Corson, D. B. ''Ideals and accomplishments of the Newark school system.'' *El. Sch. Jour.*, 21: 665-677.

On page 670 is an account of Newark's special classes for gifted children.

81. Counts, G. S. ''The social purpose of the education of the gifted child.'' *Educ. Rev.*, October, 1922, 233-244.

Importance of educating the gifted child in view of his social value. Gifted without social consciousness more dangerous than morons.

82. Court, Sophie R. A. ''Self-taught arithmetic from the age of five to the age of eight.'' *Ped. Sem.*, 30: March, 1923, 51-68.

Tells of child who learned to calculate before he could write thru keen observation and games. A child left to his own devices will not learn properly.

85. Coy, Genevieve. ''Are the following statements true?'' *Sch. and Home Ed.*, 40: Sept., 1920, 10-11.

Answer to a superintendent's statement that classes for gifted children tend to make them snobbish. Cites many examples to the contrary.

86. Coy, Genevieve. *The Interests, Abilities, and Achievements of a Special Class for Gifted Children.* Teachers College Contributions, No. 131.

Statistical study of superior children segregated from high fourth and low fifth in Columbus, Ohio.

87. Coy, Genevieve. ''The mentality of a gifted child.'' *J. Appld. Psych.*, 2: 1918, 299-307.

Record of a ten-year-old gifted child. Excellent school record. Socially and physically normal.

83. Cox, E. M. "Report of committee on promotion and rate of progress." *Superintendent's Report,* Oakland, Calif., 1917-18, 77-79.

History of acceleration, retardation, special progress, mental testing, special classes, etc., in Oakland. States that the results of special promotions and mental testing have been good.

84. Coxe, W. W. "School variation in general intelligence." *Jour. of Educ. Res.,* 4: October, 1921, 187-94.

Gives results of giving the Otis Test in twenty-four Cincinnati elementary schools as a basis for selecting pupils for a special six-year classical course. Great variation in intelligence was found.

88. Cubberley, E. P. "Promotional plans." *Public School Administration.* Boston: Houghton-Mifflin Company, 1916. 300-06.

Describes the Pueblo, Batavia, Cambridge, Mannheim, and a few other plans.

89. Cummins, R. A. "Bright and slow pupils in elementary and high school." *Jour. Ed. Psych.,* 10: Oct., 1919, 377-388.

Investigations showed no cases of bright pupils slow in the grades. Individual differences shown in various ways.

90. Davidson, H. A. "The gift of genius." *J. of Ped.,* 16: 1904, 281-297.

91. Davis, Helen. "Some problems arising in the administration of a department of measurements." *Jour. Ed. Res.,* 5: Jan., 1922, 1-20.

Methods of selecting and promoting children in Jackson, Michigan. Problems that arise and their solution.

92. Davis, Helen. "The use of intelligence tests in the classification of pupils in the public schools of Jackson, Mich." *Twenty-first Yearbook* of this Society, 1922, Part II: 136-137.

Contains an account of Jackson's acceleration classes for gifted children. See also pp. 140-141 for account of bright children in the first grade.

93. Dawson, C. D. "Classification of kindergarten children for first grade by means of the Binet scale." *Jour. of Educ. Res.,* 6: December, 1922, 412-22.

In Grand Rapids 64 percent of 2000 kindergarten children were classified in the first grade on the basis of test results. Three groups were formed. Eighteen percent had to be shifted from the original classification.

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94. **Deamer, Arthur.** "An experiment in acceleration." Fargo, North Dakota: Board of Education, 1919, 32.

Pupils for fast sections in the upper grades were selected according to their school marks. When measured with standardized tests they showed that their achievement was satisfactory. Likewise their high-school records were good.

95. **Deffenbaugh, W. S.** "Current progress in schools of cities of 25,000 population or less." *U. S. Com. Ed. Rep.*, 1914, Vol. 1.

96. **Dempsey, C. H.** "Flexible grading and promotions." *Jour. of Educ.*, 75: April 4, 1912, 373-5.

Describes the reorganization of the system at Malden, Massachusetts, which provided opportunity for bright pupils to skip three semesters of work. Lists the principles upon which reorganization was based.

97. **De Voss, J. C.** "School success of gifted children." *Proceedings of the First Annual Conference on Educational Research and Guidance*, San Jose State Teachers College, Sacramento, California: State Printing Office, 1923, 34-38.

An argument to the effect that gifted children are able to carry extra work and progress more rapidly. To some extent replies to Dr. Bagley's address on educational determinism.

98. **Dickson, Virgil E.** "The gifted child." *Jour. Ed. Res.*, 1: April, 1920, 300-301.

Group tests and their reliability. Individual mental tests in the third grade.

99. **Dickson, Virgil E.** *Mental Tests and the Classroom Teacher.* World Book Co., Yonkers, 1923. Chapter IX.

100. **Dickson, V. E.** "The treatment of gifted children in Oakland and in Berkeley." *Proceedings of the First Annual Conference on Educational Research and Guidance*, San Jose State Teachers College. Sacramento, California: State Printing Office, 1923, 26-28.

A discussion of the basis of segregation and what should be done after segregation. Argues that children should be treated differently according to their differences in ability. Also that gifted children should not merely gain time but should also have a broader and surer foundation.

101. **Dickson, Virgil E.** "The use of group mental tests in the guidance of eighth grade and high-school pupils." *Jour. Educ. Res.*, 2: October, 1920, 601-610.

The experiment described explains the progress of two selected groups of eighth-grade pupils, one an "accelerated group," and the other a "regular group," who passed through the eighth-grade and first year of high school, and concludes that many children could easily be accelerated in school without endangering scholarship; and that mental capacity is a more important fact in good scholarship than is the mastery of the subjects taught in the previous grade.

102. DICKSON, V. E. "What first-grade children can do in school as related to what is shown by mental tests." *Jour. of Educ. Res.*, 2: June, 1920, 475-80.

In Oakland, California, first-grade pupils are classified in three groups on the basis of test results and school marks. Pupils with a mental age below six cannot do regular first-grade work and should be put in a special group.

103. DOLBEAR, KATHERINE. "Precocious children." *Ped. Sem.*, 19: 1912, 461-491.

Cases of precocious children of today and geniuses of the past. Physicians and psychologists see dangers involved in crowding.

104. DOOLEY, LUCILE. "Psychoanalytic studies of genius. *Amer. J. Psych.*, 27: 1916, 363-416.

Essays on the psychology of great men. Psychoanalytical literature translated from the German. An introduction to a study of genius.

105. DOTEN, WILLARD. "Tests for ability grouping." *Am. Sch. Bd. J.*, 63: October, 1921, 37-38.

The Montclair, N. J., high-school pupils were grouped according to ability from the National and Haggerty tests. The work for the groups was differentiated. Satisfactory results followed.

106. "Double promotion." *El. Sch. Jour.*, 23: January, 1923, 324-25. An editorial.

In Macomb, Mississippi, all pupils who are recommended by the teacher and have a doctor's certificate of good health, who are not below a certain age, whose previous record in school work and attendance is satisfactory, and who make certain scores upon achievement tests are given double promotion if it does not involve skipping certain subjects.

107. DOWNES, F. E. "Other special schools." *Report of the Superintendent of Schools*, Harrisburg Public Schools, 1912, 23-26.

Describes the schools for exceptionally gifted children which allow them to cover work of the eighth and ninth years in one year. States advantages of this plan and that the pupils involved do well in high school.

108. Downes, F. E. "Seven years with unusually gifted pupils." *Psych. Clinic*, 6: 1912, 13-17.

A summary of the Harrisburg plan for gifted children. Results compared with those of a regular class.

109. Drake, E. H. "Indiana schools and the bright child." *Educ. J.*, 9: Jan., 1909, 193-198.

110. Drake, E. H. "An interesting experiment." *El. Sch. Jour.*, 15: December, 1914, 219-222.

Discusses use of maximum and minimum assignments.

111. Dutton, C. F. "Management of precocious children." *Clev. Med. Mag.*, 13: 1898, 143-151.

112. Dvorak, August. "Recognition of individual differences in the Junior High School." *Sch. R.*, Nov., 1922, 679-685.

113. Dvorak, H. D. "The mental tests of a superior child." *Ment. Hyg.*, 7: April, 1923, 250-257.

"Group intelligence tests for primary children may prove too easy for young children of very superior intelligence. The exceptionally superior child is so rare that when found in a school, he is often not recognized. *A priori* judgments are too readily formed by school officials and these judgments tend to persist despite conflicting objective evidence."

114. Dyer, F. B. "Rapid advancement classes." *Annual Report of the Superintendent*, Boston Public Schools, 1913, 65-67.

An account of certain classes in which pupils may do three years of work in two. The plan worked well and was to be extended to other schools of the city.

115. Editorial. "Recognizing individual differences." *Elem. Sch. J.*, 21: Nov., 1920, 164-6.

Grades 1-7 divided on the basis of school records into 3 parallel sections. A is divided into 6 years of work, B into 7, C into 8. All complete the same course and prepare for high school.

116. Editorial. "Grading by means of standardized tests." *J. Educ. Res.*, 5: May, 1922, 449.

Account of such grading in the Opportunity Farm School, Cincinnati, Ohio. The psychology tests showed only four boys with an I.Q. of one hundred or better. Standard educational tests were also given. As a result of these tests, reclassification was made, which resulted in a new school spirit.

117. Eike, P. V. "The most learned boy in the world." *Amer. Mag.*, 81: March, 1916, 52.

The story of Raymond Bay, a junior in high school at the age of ten. The first six years are not "play" years. Early training not detrimental.

118. Eliot, C. W. "Educational changes needed for the war and subsequent peace." *Educ.*, 38: May, 1918, 655-658.

More physical training needed, more music, art, and laboratory work. More concrete teaching, better classification, and ethical teaching.

119. Ellis, H. A. *A Study of British Genius.* 1904.

120. Ernst, Lucy H. "Das jugendliche Genie." *VIme Congress Intern. de Psychologie*, 1910, 674-684.

121. Feingold, Gustave A. "The relation between the intelligence and the vocational choices of high school pupils." *J. Appld. Psych.*, 7: June, 1923, 143-153.

122. Feingold, Gustave A. "The sectioning of high school classes on the basis of intelligence." Reprint. *J. Educ. Admin. and Suprv.*, Oct. and Nov., 1923.

Views of teachers on the sectioning of high school classes on the basis of intellect.

123. Fisher, G. M. "Report to superintendent." *Sixty-fourth Annual Report of Schools of Worcester*, 1912, 74-75.

An account of the summer school provided for failing pupils to make up work and for bright pupils to gain time.

124. Fisher, H. A. L. "Education and genius." *Jour. N. E. A.*, 12: Dec., 1923, 415.

An English educationalist discusses the necessity of developing human eminence.

125. Fleischmann, F. "A boy prodigy and the fourth dimension." *Harper's Weekly*, 54: Jan. 15, 1910, 9.

126. Flinner, I. A. "A programme for bright pupils." *Harvard Grad. Mag.*, 31: Sept., 1922, 51-56.

Favors enrichment as against acceleration.

127. Flinner, Ira A. "Rating students on the basis of native capacity and accomplishments." *Educ. Admin. and Superv.*, Feb., 1923, 87-98.

128. Flinner, I. A. "A special program for intellectually superior children." *Educ.*, 43: April, 1923, 475-480.

129. Follett, W. "Schooling without the school." *Harp. Mag.*, 139: Oct., 1919, 700-708.

The typewriter as the center of early training. Schools fail because of methods poorly adapted to normal and super-normal pupils.

130. Frasier, G. W. "The measurement of intelligence as an aid to administration." *Educ. Admin. and Superv.*, 6: October, 1920, 361-66.

An account of administering the Stanford Revision in Spokane and giving pupils special promotions and demotions according to the results. In general the placement of pupils was satisfactory.

131. Freeman, F. N. "Provision in the elementary school for superior children." *El. Sch. Jour.*, 21: Oct., 1920, 117-131.

Questionnaire indicates that many experiments are being made to provide for superior children. Provisions are discussed.

132. French, W. C. "A plan of organization for taking care of bright pupils." *El. Sch. Jour.*, October, 1923, 103-108.

Describes special courses given in a small school system by the regular teachers to 'enrich the curriculum' for the superior child.

133. Galton, F. *Hereditary Genius.* London. 1914.

134. Garrison, C. G., Burke, Agnes, and Hollingworth, Leta S. "Psychology of a prodigious child." *J. Appld. Psych.*, 1: 1917, 101-110.

The case of a gifted child not manually minded. Results show that a superior child can vary from the norm. (See No. 178.)

135. Garrison, S. C., and Pullias, G. M. "Bright children. (Mental and physical correlations.)" *Psych. Clin.*, 14: Jan.-Feb., 1923, 259-263.

Results show that superior mentality and superior physical development go together. Examples cited.

136. Gates, A. I. "Correlation of immediate and delayed recall." *J. Educ. Psych.*, 9: Nov., 1918, 489-496.

High and positive correlation exists between immediate and delayed recall. Method of testing recall determines the result.

137. **Gesell, A.** *Exceptional Children and Public School Policy.* Yale University Press, 1921, 66.

A report of a survey of 24,000 elementary school children in New Haven. The results of survey were used to make specific recommendations for the local situation, including treatment of gifted.

138. **Gesell, A.** "Mental and physical correspondence in twins." *Sci. Mon.*, 1922, 14, 305-331, 415-428.

Gives a detailed study of the mental and physical correspondence in nine-year-old twin sisters of superior intelligence who in anthropometric, educational, and psychological tests as well as dentition, development of carpal bones, skin patterns, tapping, and dynamometer tests showed marked similarities and frequent identities.

139. **Gesell, A.** "A psychological comparison of superior duplicate twins." *Psych. Bul.*, 19: Feb., 1922, 114-115.

Results of tests given to Olga and Orma, twins, show astonishing similarity in developmental history, personal characteristics, and test ratings.

140. **Gillette, J. M.** "The conservation of talent through utilization." *Sc. Mon.*, 1: 1915, 151-164.

141. **Gillingham, Anna.** "The bright child and the school." *J. Educ. Psych.*, 10: May-June, 1919, 237-252.

Mental tests in themselves not adequate for a complete index of the child's ability. Twenty-five cases cited. Enriched curriculum advocated instead of forced promotions.

142. **Gillingham, Anna.** "Educating the gifted child." *Amer. Rev.*, 1: July, 1923, 401-412.

Teaching in the Ethical Culture School, the author describes several types of gifted child in which inadequacies of personality, such as social immaturity, selfishness, etc., operate to interfere with special educational advantages. The article emphasizes the exceptional type.

143. **Gillingham, Anna.** "Superior children—their school progress." *J. of Educ. Psych.*, Sept., 1920, 327-347.

Studies of Gifted Children in the Ethical Culture School and their achievement in school subjects. Descriptions of individual cases.

144. **Gist, A. S.** "The acceleration of pupils." *Sch. and Soc.*, 5: Jan. 27, 1917, 116-118.

Investigation of the effect of shortening the pupil's elementary-school time. Many pupils can complete the required courses without injury.

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145. **Glass, J. M.**
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146. **Goddard, H.**
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147. **Goddard, H.**
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148. **Goddard, H.**
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1911, 232-25
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149. **Goldstone,**
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150. **Gordon, C.**
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151. **Gosling, F**
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145. **Glass, J. M.** "Classification of pupils in ability groups." *Sch. Rev.*, 28: September, 1920, 495-508.

In a Rochester junior-high school pupils were placed by results from several intelligence tests. Most of those so placed did satisfactory work but a few had to be shifted.

146. **Goddard, H. H.** *Human Efficiency and Levels of Intelligence.* Princ. Univ. Press, 1920. 104-105.

Possible groupings of those who test high in mental age. The highest group should be given a broader experience than the average pupil.

147. **Goddard, H. H.** *Psych. of the Normal and Subnormal.* New York. 1919. 216-17.

148. **Goddard, H. H.** "Two thousand normal children measured by the Binet measuring scale of intelligence." *Ped. Sem.*, 18: 1911, 232-259.

An experiment proving the accuracy of the Binet test and showing that the child cannot learn beyond his mental group. Discussion of the mental age of the precocious child.

149. **Goldstone, G. A.** "Differentiation of method in teaching reading to slow and bright pupils." *Bulletin of High Points in the Work of the High Schools of New York City*, 5: April, 1923, 11-14.

An account of an experiment in grouping high-school pupils into bright, medium, and slow groups according to the results of the Thorndike-McCall Reading Scale. After the groups were formed each was taught by a different method but with practically the same subject matter. The results were satisfactory.

150. **Gordon, C. H.** "Reorganization of the grammar school and a rational system of grading." *Educ.*, 21: Sept., 1900, 16-26.

An argument for two parallel courses of the same length, one of which has a richer curriculum than the other, and for the basing of promotion chiefly upon effort.

151. **Gosling, F. W.** "A special academic class in the junior high school." *Sch. Rev.*, 27: April, 1919, 241-255.

Class organized for gifted children ready for 7th grade. Twenty-four chosen by recommendation of principals and confirmed by psychological tests. Given 9th-grade work. Tables give results in detail. In general 14 of 20 who remained in class passed in all subjects, five failed in one, one in three.

152. GREGORY, C. "Holding pupils in school." *Atlan. Educ. J.*, 2: April, 1916. *N. J. Educ. Bull.*, Dec., 1915, Part II.

153. GROSZMANN, M. P. E. "Care of exceptionally bright children." *Educational Foundations*, 26: June, 1915, 587-592. (Also *Med. Rev. of Reviews*, 21: 1915, 212-214. *Sci. Amer. Sup.*, 80: Sept. 11, 1915, 171. *Mind and Body*, 2: Feb., 1915, 508 ff.

154. GROSZMANN, M. P. E. *The Exceptional Child*. New York. 1917. Especially Ch. VII.

Showing that the superior child receives less attention than the feeble-minded. Chapter VII is devoted to the psychology of exceptionally bright children. Four groups of these children are classified and discussed.

155. GROSZMANN, M. P. E. "The exceptionally bright child." *Proc. Nat. Assoc. Study and Educ. Exceptional Children*. April, 1910, 103-133.

156. GROSZMANN, M. P. E. *A Parent's Manual. I, Child Problems, Mental and Moral*. Century Co., 1923. 156-158, 164-170.

Risk in skipping a grade. Dangers of precocity. Gifted children need very wise guidance.

157. "Grouping pupils on the basis of ability." The First of a *Series of Surveys of the Dept. of Instruction*, Cleveland Public Schools, Board of Education, Cleveland, Ohio, 18-21.

In the first and seventh grades pupils were classified chiefly according to results from the Pressey Primer and Illinois scales, respectively.

158. GROVE, C. C. Review of Terman's "The measurement of Intelligence." *Ed. Rev.*, 56: June, 1918, 79.

159. GRUENBERG, B. C. *Outlines of Child Study*. Macmillan, 1923. 213-217.

Emphasizes dangers of segregation of gifted children. Gives a suggestive outline for the study of such children.

160. GUTHRIE, L. G. "Contributions from history and literature to the study of precocious children." *Lancet*, 173: 1907, 1592-6.

161. HAGGERTY, M. E. "Specific uses of measurements in the solution of school problems." *Seventeenth Yearbook* of this Society, 1918, Part II, 25-40.

Results of a questionnaire seeking to know changes in school procedure and organization after using standardized tests. Tests show enormous range of individual differences.

162. **Hamilton**, R. L. "Undeveloped resources." (Some studies in group intelligence in Sioux City High School.) *Sch. and Soc.*, 16: 1922, 416-422.

Seventy-five percent of superior students are not making full use of their capacity.

163. **Hanson**, W. A. "Mental measurement and the special class system in New London, Connecticut." *Am. Sch. Board Jour.*, 63: September, 1921, 37-119.

Twenty-seven hundred children were tested with the Dearborn and Haggerty Tests. Special classes were formed and the results also used to guide teachers in their instruction. In some cases individual tests were given.

164. **Hardesty**, **Annie** H. "Teaching my boys at home." *Ladies' World:* Jan., 1916, 12.

165. **Harley**, H. L. "Physical status of the special class for bright children at the University of Pennsylvania summer session, 1912." *Psych. Clin.*, 7: March, 1913, 20-23.

Study to determine the results of school lunches, rest periods, etc. Shows that schools can foster physical improvements as well as mental.

166. **Harris**, W. T. "Class intervals in the graded schools." *Proc. N. E. A.*, 1900, 332-340.

Discusses the desirability of frequent promotion of individual students. By this sifting process over-crowded rooms of the less skilled teachers are relieved.

167. **Harrisburg, Pa., School Committee.** *Annual Report.* 1912.

168. **Hartwell**, C. S. "The grading and promotion of pupils." *Ed. Rev.*, 40: November, 1910, 375-86. Addresses and Proceedings of the National Education Association, 48: 1910, 249-306.

An argument for flexible organization and promotion by subjects. The results of a questionnaire are given showing more favorable sentiment on these points than existed several years previously. It is also stated that bright and dull pupils should be given individual attention.

169. Harvard Alumni Bulletin. "Education from the inside." *Sch. and Soc.*, 17: June 9, 1923, 637.

A short report of the plan in Harvard and Princeton to encourage self-education.

170. Hatch, W. E. *et al.* "Provisions for exceptional children in the public schools." *Addresses and Proceedings of the National Education Association*, 45: 1907, 360-63.

Rather brief discussion of several of the plans.

171. Hehir, Sir Patrick. "Quest of the embryonic genius." *Nineteenth Century*, 92: Oct., 1922, 600-609.

Discusses value of intelligence tests in discovering genius. Recommends special classes for gifted. Treats of conditions in England.

172. Henry, T. S. "Classroom problems in the education of gifted children." *Nineteenth Yearbook* of this Society. 1920.

Chief problem that of adapting new methods. There should be less drill, less explanation, use of initiative, principles instead of details. No peculiar problems of discipline encountered. (See also references to Whipple and to Coy.)

173. Hill, D. S. *Notes on the Problems of Extreme Individual Differences in Children of the Public Schools*, New Orleans, 1913. Especially 67-72.

174. Hirsch, W. *Genius and Degeneration.* New York. 1896.

175. Hirt, Zoe I. "A gifted child." *Tr. Sch. Bull.*, 19: June, 1922, 49-54.

Case study of an eight-year-old girl with an I.Q. of 188, doing sixth-grade work in the school.

176. Hische, W. "Die Auslese der Begabtung in Hanover." *Praktische Psychol.*, 2: 1921, 129-142. (Abstracted in *Psy. Bull.*, 19:54).

177. Hollingworth, Leta S. *The Psychology of Subnormal Children.* Macmillan, 1920. 8, 68, 234-235.

Superior children are reported as having physical defects as well as subnormals. The relation of physical defects to the range of intelligence is almost unknown.

178. Hollingworth, Leta; Garrison, Charlotte; and Burke, Agnes. "Subsequent history of E——, five years after the initial report." *J. Appl. Psych.*, 6: June, 1922, 205-210.

A sequel to the article by Garrison, Burke, and Hollingworth in the same journal, 1: 1917, 101-110, entitled "The psychology of a prodigious child." The case is said by the authors to deviate 11 P.E. from the average child. (See No. 134)

179. **Holmes**, H. W. "The general philosophy of grading and promotion in relation to intelligence testing." *Sch. and Soc.*, 15: April, 29. 1922, 457-461.

The author strongly opposes rapid advancement of gifted pupils, although he considers it preferable to dull hours. He advocates enriched curriculum.

180. **Holmes**, H. W. "Intelligence tests and individual progress in school work." *Twenty-first Yearbook* of this Society, 1922, Part II, 117-122.

A plea for increased attention to social, moral, and physical development. Enriched programs are advocated as opposed to rapid advancement of superior children.

181. **Holmes**, W. H. "Plans for classification in the public schools." *Ped. Sem.*, 18: 1911, 475-502.

An exposition of three plans of individual instruction—Pueblo, Batavia, and Newton. A brief description of other plans of grading and instruction which have gained prominence.

182. **Holmes**, W. H. "Promotion classes for gifted pupils." *J. of Educ.*, 75: 1912, 376-379.

A comparison of the 'Constant Group' and the 'Shifting Group' plans for providing for individual differences in pupils. The superior value of the 'Shifting' plan is shown.

183. **Holmes**, W. H. *School Organization and the Individual Child.* Davis Press, Worcester, Mass. 1912, 211.

184. **Hood**, **William** R. The Exceptionally Capable Child. In U. S. Bureau of Educ. *Report*, 1911, I, 143.

185. **Horn**, J. L. "Caring for highly endowed pupils." *Sch. Rev.*, 29: December, 1921, 776-781.

The report of the Oakland, Cal., plan to determine to what extent superior children are being neglected. Four specific cases are cited. Adjustments of curricula have improved the holding power of the schools.

186. **Howerth**, **Ira**. "Universal education and the increase of genius." *Ed. Rev.*, 63: January, 1922, 50-56.

A disciple of Lester F. Ward.

The author states that the chances of success for a wealthy person are three times as great as for a poor person of the same native ability. He says that schools should afford an education to all classes of people and not concentrate on a few.

187. Hughes, W. H. "Provisions for individual differences in high-school organization and administration" *Jour. Educ. Res.*, 5: January, 1922, 62-71.

Homogeneous grouping may not be desirable in some communities. Abuse of supervised study and variety of pupil capacities are discussed fully.

188. Hughes, W. H. "Standardizing procedure in a combination system of supervised study, varying scope of work, and weighted credit." *Jour. Educ. Res.*, 2: Sept., 1920, 547-556.

The scheme provides for a specific statement in each school subject of the scope and quality of work which a student of average ability should be able to accomplish, an enumeration of additional work and characteristics necessary to attain extra units of credit, also provisions for diminished credit for inferior work, and directions to the student of extraordinary ability for carrying on an original piece of work.

189. Hunter, F. N. "Report of the superintendent of schools for the year 1917-18." Oakland, California: Board of Education, 1919, 353.

Contains considerable discussion of the Otis and Simon-Binet Tests, flexible promotion, etc.

190. Huth, A. "Förderung der Begabtung durch Gruppenunterricht." *Deutsche Schule*, 25: 1921, 152-161. Abstracted in *Psy. Bull.*, 19:158.

191. "Intelligence tests as a basis for homogeneous grouping at Xenia, Ohio." *Am. Sch. Board Jour.*, 64: March, 1922, 75-76.

Three groups were made up of seventh- and eighth-grade pupils on the basis of the Haggerty and Terman Tests. They were regrouped later as was necessary but in most cases stayed in the same group.

192. Irving, M. Louise. "Classification into ability groups in Santa Rosa." *Jour. of Educ. Res.*, 6: November, 1922, 362-64.

In the junior high school of Santa Rosa classification is based upon two or three intelligence tests and several achievement tests.

193. Irwin, Elizabeth. "Measuring the child's intelligence." *Delin.*, 97, No. 3: Oct., 1920, 39, 69.

194. IZANT, G. G. Do spare time activities make for school progress? *Educ. Rev.*, 42: Oct., 1921, 239-42.

Intensive study of 200 Cleveland children: 50 retarded 2 years, 50 accelerated 2 years, 100 in normal grade. The accelerated children differed in their choice of recreations, reading, music, and athletics; while the retarded indulged in making things, hiking, pool playing, and killing time.

195. JAHRLING, ROBERT. "Educating gifted children in Hamburg." *Ped. Sem.*, 30: March, 1923, 35-39.

Describes method of selecting the 900 most gifted children from the 20,000 of the fourth year of the Hamburg schools, to be admitted to classes for special training leading to professions and higher vocations.

196. JOHNSON, O. J. "Classes for gifted pupils in summer school." *Jour. Educ. Res.*, 5: Jan., 1922, 85-86.

Ninety-five out of 140 pupils selected from the upper fifth of all classes by means of intelligence tests attended summer school and completed a semester's work. The results of the experiment are given.

197. JOHNSON, O. J. "Solving the problems of gifted children by means of the special class." *Am. Sch. Board Jour.*, 67: Nov. 1923, No. 5, 41-43.

Discusses work of such classes in the St. Paul system. Special classes for gifted children give them the opportunity to advance rapidly until they reach the grade normal for their mental age, make it possible to remove deficiencies in their achievement much more effectively, etc.; and save time and to some extent money.

198. JOHNSON, O. J. "Teachers' judgments of qualities of gifted St. Paul pupils as related to classroom activities. *Sch. & Soc.*, 17: Apr. 28, 1923, 466-69.

Discusses satisfactory results in special classes for gifted pupils at St. Paul, Minn.

199. JOHNSON, O. J. Teachers' reports on Alpha classes. Sch. *Bull. of the Dept. Ed. of the City of St. Paul.* Vol. 6, No. 1. Oct. 1922.

200. JOHNSON, O. J. "Relative achievements of dull and bright pupils." *Jour. Ed. Res.*, 7: May, 1923, 459-460.

The relative achievements show that there is a measurable difference between slow and bright classes. The advantage is with the slower or dull classes. Bright pupils need to be stimulated to a more complete mastery of their studies.

201. **Jones, Alice M.** "The superior child." *Psy. Clin.*, 15: March-April, 1923, 1-8: May-June, 116-123.

Extensive reports of 8 cases showing the enormous range of differences among superior children. The writer gives their mental and physical characteristics as well as a prognosis of success.

202. **Jones, C. T.** "Suggestive plan for the study of very bright children." *J. of Educ.*, 85: March, 1917, 290-292.

Part two of this article deals with experimental studies that might be made in regard to the school education of the supernormal child.

203. **Jones, C. T.** "Very bright and feeble-minded children." (A study of qualitative differences.) *Tr. Sch. Bull.*, 16: Dec., 1919, 137-141: Jan., 1920, 153-164.

204. **Jones, E. E.** "Suggestions from cases of unusually rapid or irregular progress in public schools." *Proc. N. E. A.*, 1912, 640-645.

This is a statistical study based upon 257 cases classified into seven groups and ranked by the number of years consumed in the course and by the character of the work done. The course of study is analyzed from the sex standpoint.

205. **Jordan, R. H.** "An example of classification by group tests." *Educ. Admin. and Superv.*, 6: April, 1920, 198-201.

In a Minnesota grade school the seventh- and eighth-year pupils were tested with several mental tests. Those above the 75 percentile of the next higher class were considered for extra promotion, those below the 25 percentile of the next lower class for failure or demotion.

206. *Journal of Educational Research*, 7: March, 1923, 265.

In Painesville, Ohio, seventh- and eighth-grade pupils are grouped according to the Illinois Examination results. The sub-normal of these grades are promoted on the basis of their effort.

207. *Journal of Educational Research*, 7: May, 1923, 454.

A brief account of the reclassification of pupils in grades V-VIII on the basis of scores upon the National Group Intelligence Test, teachers' marks, and the time devoted to home work. Such changes in the original classification as seemed necessary were made. The plan seems to have been successful.

208. *Journal of Educational Research*, 7: May, 1923, 456-57.

In Miami, Arizona, results from the Otis and National Group Intelligence Tests are used to determine the I.Q.'s of the pupils for the purpose of grouping. Each teacher handles two sections of different ability, the average and the dull. Extra promotions are given to take care of the brighter pupils. The failure rate has been decreased very markedly while results of standardized tests show that achievement has not been lowered.

209. Kallom, Arthur W. "Intelligence tests and the classroom teacher." *J. Educ. Res.*, 5: May, 1922, 389 ff.

Kallom urges that pupils be divided within the grade on the basis of their mental ability as determined by group intelligence tests, supplemented by individual tests.

210. Kearney, Julia F. "Teaching and following-up supernormal children in a small public school." *Jour. Educ. Res.*, 7: Feb., 1923, 145-148.

Describes the enrichment of the curriculum for a class of 27 boys of high I.Q. in a New York public school.

211. Keener, E. E. "The use of measurements in a small city school system." *Jour. of Educ. Res.*, 3: March, 1921, 201-06.

This article mentions a few instances of readjustment in school based upon test results. The averages given are from the Richmond, Indiana, schools.

212. Kendall, C. N. "Modifications in organization necessary to secure suitable recognition of pupils of varying ability." *Proc. N. E. A.*, 1908, 147-152.

Segregation of superior children involves placing under a strong teacher, and consideration of college and vocational groups. It involves consideration of teacher's judgment, immaturity of children, desires of parents, and expense.

213. Kerrigan, Agnes. "The gifted child." *Journal N. E.A.*, 11: 1922, 352 ff.

214. Ketner, Sarah P. "Grouping by standardized tests for instructional purposes." *Jour. of Educ. Res.*, 2: October, 1920, 620-25.

A Denver school grouped pupils in reading, arithmetic, and penmanship according to the results of tests. The experiment seemed to be successful and the plan was to be extended to other schools.

215. Kiernan, J. J. "Is genius a sport, a neurosis, or a child potentially developed?" *Alienist and Neurologist*, 36: 1915, 165-236, ff.

216. Kohs, S. C. "The man of genius." *Sch. and Soc.*, 17: April 21, 1923, 429-431.

217. **Kolbe, P. R.** "Problem of the competent." *Sch. and Soc.*, 3: March 11, 1916, 378-380.

Discusses the present neglect of the exceptional student. Ways of reform discussed. Certain sections should be reserved for the competent student.

218. **Kyte, George C.** "An experiment in the education of gifted children in the first grade." In Technique of Supervision by the Elementary School Principal. *First Yearbook of the Dept. of Elem. Sch. Prin., N. E. A.*, 1922, Chapter V, 71, ff.

219. **Laird, D. A.** "Educating the superior child." *Yale Rev.*, 11: March, 1922, 546-555.

220. **Lang, A.** "Genius in children." *N. Amer. Rev.*, 165: January, 1897.

221. **Layton, W. K.** "The group intelligence testing program of the Detroit Public Schools." *Twenty-first Yearbook* of this Society, Part II: 1922, 123-130.

A report of the X, Y, Z plan of classification used in Detroit; the tests given, the scores, letter ratings, and the work of the psychological clinic.

222. **Lee, J. B.** "Breaking the lock step in our schools." *Educ. Rev.*, 56: Sept., 1918, 149-157.

An experiment to give superior boys an opportunity for full development. The lessons learned by the experimenters are of value to anyone establishing gifted classes.

223. **Lindley, E. H., and Bryan, W. L.** "An arithmetical prodigy." *Psych. Rev.*, 7: 1900, 135 ff.

Arthur Griffith's scope, tenacity of memory, and rapidity among the best ever recorded. Capacity depends upon number relations committed to memory, and upon short-cuts.

224. **Lipsky, A.** "School guidance by mental tests." *Sch. and Soc.*, 3: 320-24.

225. **Littwin, M. F.** "English 'star' classes at the Boys' High School." *Bulletin of High Points in the Work of the High Schools of New York City*, 5: March, 1923, 4-7.

On the basis of school marks special sections were formed in the sixth, seventh, and eighth semesters of high school. These sections were given differentiated and enriched work in English. A number of advantages were derived from the plan.

226. Lobsien, M. "Untersuchungen über die Befähigung zum Erlernen der Fremdsprache." *Praktische Psych.*, 4: 1922, 33-44. Abstract in *Psy. Bull.*, 20: 313.

227. Louisville, Ky., Board of Education. *Sixth Report:* 1917, especially 40-44, 81.

228. Lowell, F., and Woodrow, H. "Some data on anatomical age and its relation to intelligence." *Ped. Sem.*, 29: 1922, 3-15.

Lowell and Woodrow, in a study of 402 children, found a positive but low correlation between dentition, intelligence, and development of carpal bones.

229. Lynch, Ella J. "The bright child." *Psych. Clin.*, 4: 1910, 141-144.

Discussion of the need of establishing a school for the bright child. The plan includes no home work, and not more than six pupils for each teacher.

230. McCall, W. A. *How to Measure in Education.* Macmillan, 1922. 62-66, 187-189.

Answers common objections to special classes for gifted children. Discusses vocational guidance for such children.

231. McDonald, R. A. F. *Adjustment of School Organization to Various Population Groups.* Teachers Coll. Contrib. to Educ., No. 75: 1915. Especially Ch. XI.

232. MacPhail, A. H. "The correlation between the I.Q. and the A.Q." *Sch. and Soc.*, 16: Nov. 18, 1922, 586-588.

Superior children are not working up to their capacity. Report of projects carried out under Colvin. Elementary standards now suited to the slower pupils.

233. Macmillan, D. P. "The discovery and training of exceptionally bright children." *The Child in the City:* 1912, 203-212.

234. Madsen, I. N. "Group intelligence tests as a means of prognosis in High School. *J. Educ. Res.*, 3: Jan., 1921, 43-52.

235. Madsen, I. N. "Relation between general intelligence and success in certain high school subjects. *J. Educ. Res.*, 3: May, 1921, 396-398.

A comparison of students in commercial and traditional high schools in Omaha. It appears that differences in degree of intelligence are required for success for different subjects. Classical subjects are at the top, vocational subjects toward the bottom.

236. Maennel, B. *The Auxiliary Schools of Germany.* (Eng. trans. *Bull. U. S. Bureau Educ.*, 1907, No. 3.)

237. Mallory, J. N. "A study of the relation of some of the defects to the achievement in the elementary school. George Peabody Coll. for Teachers. *Contributions to Education.* No. 9, 1922, 78.

Mallory from a survey of the elementary grades in Humboldt, Tenn., concludes that physical defects are directly associated with low scores in school and ranks defects as to degree of handicap: (1) nasal obstruction; (2) defective teeth; (3) defective hearing; (4) defective tonsils; (5) and very slightly defective eyesight.

238. Marshall, Jessica. "Using the results of testing." The Technique of Supervision by the Elementary Principal. *The First Yearbook of the Dept. of El. Sch. Prins.* Washington: National Education Association, May, 1922, 49-55.

An account of the use of tests for purposes of placing pupils in a Toledo school. In the lower grades classification was chiefly according to the results of various intelligence tests, in the upper grades according to those from achievement tests.

239. Meriam, J. L. *A Child's Life and the Curriculum.* Yonkers-on-Hudson. World Book: 1920. xii, 538.

240. Meyer, Adolph. "Berlin schools for gifted children." *Ped. Sem.*, 30: Sept., 1923, 205-210.

A report of gifted classes in Berlin. Intelligence tests given to aid in selection. Certain cautions given concerning the avoidance of snobbishness.

241. Millard, B. "Precocity and genius." *Bookman*, 42: Nov., 1915, 340-345.

Exploitation of child wonders. Modern eugenists account for precocity in parents' age at time children are born. Many cases of geniuses given.

242. Miller, C. A. "The study of exceptional children." *Proc. N. E. A.*, 1908, 957-963, especially 958-9.

Marked variation from the average indicates the exceptional child. The Baltimore plan discussed.

243. Miller, G. A. "Mathematical prodigies." *Science*, 26: Nov. 8, 1907, 628 ff.

Mathematical precocity requires neither mental ability nor cultured surroundings. The versatile prodigy comes from proper home conditions. Such a child must have genuine mental ability.

244. Miller,
Feb., 192

A brief sta
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245. Mitchel
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246. Mitchel
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247. Mitchel
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248. Monroe,
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249. Montgom
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250. Morrison
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251. Mudge, E
Sem., 30

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superior girl. S

244. MILLER, W. S. "General intelligence tests." *Sch. Rv.*, 28: Feb., 1920, 94.

A brief statement that the Univ. of Minn. High School has been classifying entering students according to mental test results with a list of favorable results. Highest correlation between mental test results and achievement is in mathematics and science.

245. MITCHELL, D. "Psychological examination of pre-school age children." *Sch. and Soc.*, 15: May 20, 1922, 561-568.

The experiment described shows a wide variability in native capacity. Difficulties to be overcome, because the intelligence quotient is but a beginning. The present curriculum must be modified.

246. MITCHELL, DAVID. "Schools and classes for exceptional children." *Educational Survey. Cleveland, Ohio:* Cleveland Foundation, 1916. 122.

Discusses provisions for ten classes of exceptional children in Cleveland. Bright children are not included in those provided for.

247. MITCHELL, F. D. "Mathematical prodigies." *Sc.*, 26: Nov. 8, 1907, 628 ff.

Contains a summary concerning mathematical prodigies and an account of the methods of calculation used by the author. He states that skill in mental calculations is independent of general education.

248. MONROE, W. S. *Measuring the Results of Teaching.* Houghton Mifflin, 1918. 128.

In tool subjects too much training can be given. Before giving individual instruction secure information by means of intelligence tests.

249. MONTGOMERY, E. W. "Group tests for intelligence in the Bedford (Indiana) schools," Sixth Conference on Educational Measurements, *Bull. Exten. Div.*, Vol. 5, No. 1. Bloomington: Indiana University, 1919, 54-55.

The Binet-Simon Test was used to select pupils for special classes. In addition group tests were used in high school as the basis of organizing fast sections.

250. MORRISON, J. C. "The supervisor's use of standard tests of efficiency." *Elem. Sch. J.:* January, 1917.

251. MUDGE, E. L. "The superior girl in early adolescence." *Ped. Sem.*, 30: March, 1923, 45-47.

The author discusses the leadership that ought to be exercised by the superior girl. Superior girls have a substantial attitude towards life.

252. MULFORD, H. J. "The human mind." A suggestion as to the constitution of normal, subnormal, and supernormal mind. *Amer. J. Psych.*, 29: July, 1918, 272-290.

He discusses the three phases of mind in relation to time: the normal mind represents present time; the sub-normal mind represents the past; the super-normal mind represents the future. Interesting discussion of what mind may become

253. MULREY, CORA L. "The rapid advancement class." *Educ. Adm. and Superv.*, 3: 1917, 416-419.

The pupils discussed were selected because of mental, moral, and physical leadership. Curriculum enriched. These classes are discussed as individual and community assets.

254. MURRAY, E. P., and SMITH, H. O. *The Child Under Eight.* New York: Longmans, Green, 1919.

255. MYERS, G. C. "Broadening the course of study for the brighter children." *Educ. Adm. and Superv.*, 3: Jan., 1917, 33-37.

The plan in Carthage, N. Y., is to enrich curricula in history, English, civics, geography, and science. Possible objections to this scheme stated and answered.

256. MYERS, G. C. "Intelligence classification and mental hygiene." *Ped. Sem.*, 28: June, 1921, 156-60.

An argument for complete mental surveys of school systems.

257. MYERS, C. E., MYERS, G. C., and LAYTON, S. H. "Group mental testing in Altoona, Penn." *Sch. and Soc.*, 13: March 28, 1921, 624-628.

The Myers' Mental Measure was used. It was recommended that special classes for sub-normal and super-normal children be formed; that several parallel courses be organized; that pupils be classified according to their I.Q.'s and school marks, etc. into four groups in each grade.

258. MYERS, CAROLINE, and MYERS, G. C. *Measuring minds.* Newson and Co., New York. 1921, 39-40.

The chief service of intelligence tests is to find ability which a teacher is not likely to discover. A bright child may be listless or indifferent due to the teacher's failure to classify him early.

259. MYERS, G. C. "Training for leadership." *Sch. and Soc.*, 17: April 21, 1923, 437-439.

260. Naccarati, S. "The morphologic aspect of intelligence." *Arch. of Psychol.*, 27: 1921, 1-44.

261. Naccarati, S., and Guinzberg, R. L. "Hormones and intelligence." *J. of Appl. Psych.*, 6: 1922, 221-234.

Naccarati and Guinzberg find a positive correlation between intelligence and ratio of height to weight in three groups of university students.

262. "Negaunee adopts modified plan of grouping pupils according to ability." *Mich. Educ. Jour.*, 1: Dec., 1923, 147-149.

Describes plan worked out in Negaunee, Michigan, schools.

263. Neverman, P. F. "New Richmond plan of grade promotion." *Amer. Sch. Bd. J.*, 54: Jan., 1917, 38.

264. Newton, Mass., School Committee, *Annual Report*, 1913.

265. Nichols, M. L. "The teaching of science to classes divided according to ability." *Ninth Annual Schoolmen's Week Proceedings*, University of Pennsylvania, Vol. 23, No. 1, 324-26.

In the South Philadelphia High School for Girls science classes were divided according to results of intelligence tests. Different methods of teaching were used in the different sections.

266. Norsworthy, Naomi. "Acquisition as related to retention." *J. Educ. Psych.*, 3: 1912, 214-218.

267. Norsworthy, Naomi, and Whitley, Mary T. *The Psychology of Childhood*. New York: 1918, 328-333.

268. Odell, C. W. "The double track system in a small school." *El. Sch. J.*, 22: Mar., 1922, 544-6.

Grades divided into A and B sections. Divisions not fixed. Plan in use in a typical consolidated school.

269. Odell, Charles W. *The Uses of Intelligence Tests as a Basis of School Organization and Instruction*. Univ. of Illinois Bull., Vol. 20, No. 17; Bureau of Educational Research Bull., No. 12, December 25, 1922, especially Chapter V.

The chapter gives some experimental evidence as to advantages gained by bright pupils in placing them in 'fast' sections.

270. Olerich, H. "Das wunderliche Viola Rosalia Olerich." *Körperliche Erziehung*, 9: 1913, 323-329.

271. OLERICH, H. "The cleverest child in the world." *Strand Mag.*, 20: 1900, 130-136. (Review in *Ped. Sem.*, 7: 1900, 455.)

Viola Olerich, considered one of the most advanced juvenile pupils on record, adopted by Prof. Olerich to test a new theory of education. A summary of accomplishments given.

272. Omaha, Neb. Omaha's experiment in acceleration of school children. Omaha Public Schools, *Official Publication*, Nov., 1919.

273. OMANS, A. C. "Provisions for ability grouping in junior and senior high school." *Am. Sch. Board J.*, 45: Oct., 1922, 55-58, 138.

Gives data as to provisions for ability grouping in 50 schools. Concludes that such grouping is beneficial and the course for the gifted should be broadened. The basis of classification should be intelligence ratings, checked by teachers' judgment, and standardized educational tests.

274. OMANS, MR. AND MRS. L. R. "An interesting school experiment." *Am. Schoolmaster*, 13: 126-131.

An experiment in a special class for gifted children at Ypsilanti, Mich. The class successfully completed 8th grade in one semester.

275. O'SHEA, M. V. "Popular misconceptions concerning precocity in children." *Sci.*, 34: 1911, 666-674.

The author says that modern intellectual prodigies give us no new view of human nature nor of education. They do indicate what may be achieved.

276. O'SHEA, M. V. "What Mrs. Stoner did for her child." *McClure's Mag.*, 45: July, 1915, 38-39, 76-77.

An account of the teaching and accomplishments of Winifred Stoner. The first five years are the most fruitful for education, provided proper methods are used. Play, keen observation, and concentration needed.

277. OSTWALD, W. *Grosse Männer.* Liepzig. 1909.

278. PARKER, S. C. *General Methods of Teaching in Elementary Schools*: Ch. XL. Ginn & Co.

279. PARKINSON, W. D. "Promotions, accelerated and retarded." *Educ.*, 19: November, 1898, 152-57.

An argument that there is some advantage in the inertia of the graded system and that only a comparatively few pupils should be accelerated and retarded.

280. PATTERSON, M
William Rineh
234-238.

281. PATTERSON, M
at Johns Hop
1922, 577-84.

An account of a
work in two. Especi
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282. PEARSON, K.
Physical Char
Memoirs. St
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283. PEARSON, P.
Life, 5, No. 3

284. PECHSTEIN, L
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285. PERRIN, H.
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286. PETER, R., a
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287. PETER, R.,
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288. PETZOLDT, J
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289. PETZOLDT, J.
Befähigte."

280. Patterson, M. Rose. "A preparatory center in Baltimore, William Rinehart School, No. 52." *Atlan. Educ. J.*, 12: 1917, 234-238.

281. Patterson, M. Rose. "The Homewood demonstration school at Johns Hopkins University." *Sch. and Soc.*, 16: Nov. 18, 1922, 577-84.

An account of an experiment in which a number of pupils did five months work in two. Especially the underage pupils succeeded in doing the extra work.

282. Pearson, K. *The Relationship of Health to the Psychical and Physical Characters of School Children.* Drapers Co. Research Memoirs. Studies in National Deterioration, 4. Cambridge Univ. Press. 1923.

Pearson from the examination of 2388 boys and 2290 girls finds some correlation between health and intelligence both of which change little if any throughout school life. He has recently published a book on the relationship of health to the psychical and physical characters of school children.

283. Pearson, P. H. "German schools for gifted pupils." *Sch. Life*, 5, No. 3: Aug. 1, 1920, 5-6.

284. Pechstein, L. A. "From him that hath brains." *Educ. Rev.*, 66: June, 1923, 4-6.

Mental tests and educational measurements are good when they are individualized enough to locate individual elements of weakness or power. Poor pupils often over-stimulated, the gifted under-stimulated.

285. Perrin, H. A. "The exceptional child." *Sch. News and Prac. Ed.*, 34: Jan., 1921, 302-305.

Discusses treatment of accelerates.

286. Peter, R., and Stern, W. "Die Auslese befähigter Volkschüler in Hamburg. Hamburger Arbeiten zur Begabungsforschung." Nr. 1., Beiheft 18, *Zeits. f. angew. Psychol.*, 2 Auf., 1922. Abstracted in *Psych. Bull.*, 19: 293.

287. Peter, R., and Stern, W. *Die Auslese befaehigter Volkschueler in Hamburg.* Leipzig. Barth. 1921.

288. Petzoldt, J. "Sonderschulen f. hervorragend Befähigte." *Neue Jahrbücher f. Päd.*, 14: 1904, 425-456.

289. Petzoldt, J. "Drei Thesen über Sonderschulen f. hervorragend Befähigte." *Arbeiten des Bund f. Schulreform*, Nr. 5: 55-74.

290. **Petzoldt, J.** "Die Einwände gegen Sonderschulen f. hervorragend Befähigte." *Neue Jahrbücher f. Päd.*, 28: 1911, 1-24.

291. **Pintner, R.** "Brightest children are the most retarded." *Sch. Life*, 6: No. 5, March, 1921, 5.

This is a study of 4215 cases showing that bright pupils are more apt to be educationally retarded than the dull. Pintner's mental and educational survey evaluates attainment in mental terms.

292. **Pintner, R.** *Intelligence Testing, Methods, and Results.* Holt. 1923. Ch. IX.

293. **Pintner, R.** "The significance of intelligence testing in the elementary school." *Twenty-first Yearbook* of this Society, Part II: 1922, 153-167, esp. 155-158.

Describes Coy's experiment at Columbus, O.

294. **Pintner, R.**, and **Noble, H.** "The classification of school children according to mental age." *Jour. Educ. Res.*, 2: November, 1920, 713-28.

About 5000 pupils in a Columbus, Ohio, school were tested with the Stanford Revision. Fifteen percent were either given extra promotion or demoted. Special classes and an ungraded class were formed; acceleration and retardation were both reduced; discipline, work, and interest were bettered.

295. **Piorkowski, C.** "The principles of selection in the Berlin examination for children of conspicuous talent." *Praktische Psychol.*, 2: 1921, 186-188.

A plan for furnishing special educational opportunities to the children of the common schools whereby, annually, 150 pupils, who are recommended by their teachers, are given a psychological examination. The choice is based upon the combined results of scholastic standing, personality, and success in the tests—with special reference to conspicuous superiority in any one of the three phases.

296. **Pressey, S. L.** "A systematic plan for selecting sub-normal and super-normal children in the public schools." Fifth Conference on Educational Measurements, *Bulletin of the Extension Division, Vol. 4, No. 4.* Bloomington: Indiana University, 1918, 92-99.

Recommends that a group test be used first and then the Stanford Revision.

297. Pressey, S. L., and Pressey, L. W. "The practical efficiency on a group scale of intelligence." *J. Applied Psych.*, 3: March, 1919, 68-80.

Gives results of tests given to Dr. Helen Race's experimental group of gifted children at Louisville, Ky. (See No. 309.)

298. Price, E. D. "The Enid plan of classification of pupils according to mental ability." *Enid, Okla., Bd. of Educ.*: 1921, 12.

Elementary pupils were grouped into three groups according to teachers' opinions. The superior and inferior groups were also tested by the Terman test, the results of which usually verified the teachers' judgments.

299. Proctor, W. M. *Psychological Tests and Guidance of High School Pupils.* J. of Educ. Res. Monographs, No. 1. Bloomington: Public School Publishing Co., June, 1921, 70.

Believes that in the guidance of pupils mental tests may be used along with teachers' estimates of ability, records of school success, and vocational ambitions of the pupil. Suggestions are mainly negative.

300. Proctor, W. M. "The use of psychological tests in the educational guidance of high-school pupils." *Jr. Educ. Res.*, 1: May, 1920, 369-381, esp. 372-373.

An experiment showing the value of mental tests for prognosis. Specific cases cited. Comparisons made between a guided and an unguided group.

301. Proctor, W. M. "The use of psychological tests in the vocational guidance of high-school pupils." *Jour. of Educ. Res.*, 2: September, 1920, 533-46.

A discussion of the occupational levels of intelligence as found by testing in the army, the vocational choices of high-school pupils, and the connection between the two. States that pupils should be guided out of vocations that require a greater degree of intelligence than they possess.

302. "Provision for exceptional pupils in Oakland." *Sch. and Soc.*, 14: July 16, 1921, 30-31.

Gives data as to the number of special classes and special promotions for exceptional pupils.

303. "Pupils classified by mental tests." *Sch. Life*, 12: February 1, 1921, 13.

An account of reclassification of pupils in the W. T. Harris school of New York City by group tests.

304. **Pyle, W. H.** "A psychological study of bright and dull pupils." *J. Educ. Psych.*, 6: 1915, 151-156.

Discusses the discovery of mental differences between groups of bright and dull pupils. Tests valuable in proving that mental differences can be discovered are named.

305. **Pyle, W. H.** "Retention as related to repetition." *J. Educ. Psych.*, 2: 1911, 311-321.

An experiment showing the relation of repetition to retention, memory to quickness of learning. Concludes that the fast learner is more accurate than the slow learner. Other conclusions.

306. **Pyle, W. H.** "The value to be derived from giving mental tests to all school children." Fourth Int. Cong. Sch. Hyg., Buffalo, 1913.

307. **Pyrtle, E. Ruth.** "Super-normal children—a study." *Jour. Educ. Meth.*, 1: March, 1922, 273-75.

Describes the plan used in the junior high school of Lincoln, Nebraska. On the basis of their school records the brightest pupils are selected and allowed to do three years of work in two. Many advantages are listed.

308. **Rabeau, J.** "Mathematische Unterrichtserfahrungen an der Begabtenschule der Köllnischen Gymnasiums." *Praktische Psychol.*, 3: 1921, 15-20. Abstracted in *Psy. Bull.*, 19: 59.

309. **Race, Henrietta V.** "A study of a class of children of superior intelligence." *J. Educ. Psych.*, 9: Feb., 1918, 91-98.

The report of a Louisville opportunity class. Gifted pupils able to accomplish two years' work in one. However, they can form habits that cripple their ability. (See No. 297.)

310. **Rapp, Anna A.** "Grouping of children by abilities and consequent changes in school procedure. 2. Procedure in Reading." Ninth Annual Schoolmen's Week Proceedings, *University of Pennsylvania Bulletin*, Vol. 23, No. 1, 263-67.

The Terman and Illinois Tests were used in the seventh and eighth grades and pupils classified according to scores.

311. **Rasey, Lee.** "A program arrangement for mental groups." *Sch. Rev.*, 31: 1923, 608-611.

Describes certain classes on basis of intelligence tests, accomplishment, teachers' estimates.

312. **Rathmann, C. C**
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A report of school
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313. **Reed, Ivy K.** "
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314. **Reeve, W. D.**
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315. **Reeve, W. D.** "
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316. **Richman, Julia.**
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317. **Rigler, Frank.** "
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318. **Roberts, J. E.** *A*
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312. **Rathmann, C. C.** "The Mannheim system of school organization." *Educ. Rev.*, 53: 1917, 55-60.

A report of school organization in Mannheim, Germany, based upon individual differences in physical and mental makeup.

313. **Reed, Ivy K.** "The three R's at four years old." *Atlan. Mon.*, 123: May, 1919, 664-668.

Progress of Eric attributed to proper introduction to the three R's. Advantage taken of natural desire and ability to learn. School time saved by this plan.

314. **Reeve, W. D.** "Homogeneous classification of high-school children according to ability shown on psychological tests." *Jour. Mich. Schoolmasters' Club*, Ann Arbor, Mich., 1921, 18-26.

315. **Reeve, W. D.** "Homogeneous grouping of high-school students by means of psychological tests." *Fourth Yearbook Nat. Assoc. Secondary School Prins.* Menasha, Wisconsin: George Banta Publishing Company, 1921, 81-94.

States that it is a waste of time to attempt to teach the best and worst 10 percent along with average pupils. Discusses the correlation of tests and school marks and says that classification by test results makes it easier to provide suitable instruction, reduces failures, gives the brighter pupils better training, and in general conserves human resources.

316. **Richman, Julia.** "A successful experiment in promoting pupils." *Educ. Rev.*, 18: June, 1899, 23-29.

In a New York school the pupils of grades I-VI were divided into bright, medium, and poor sections, each going at its own rate. The effect was to increase the number of promotions.

317. **Rigler, Frank.** "Principles of classification." *Thirty-seventh Annual Report of the Public Schools of Portland, Oregon*, 1909-10, 113-19.

Description of the Portland plan in which the course of study is divided into fifty-four parts arranged in six cycles of one and one-half years each. At the end of each cycle pupils are reclassified according to their ability, there being two rates at which they may progress.

318. **Roberts, J. E.** *A Working Scheme of Promotional Efficiency.* Madison, Wis., 1916.

319. **Rogers, M. C.** "Adenoid and diseased tonsils: their effect on general intelligence." *Arch. Psychol.*, No. 50, 1922.

Rogers studied the effect of adenoids and diseased tonsils on general intelligence and found it very slight if any. In the first 6 months there was a slight gain in weight; in the second 6 months a more rapid gain in weight, very slight gain in height and increase in speed of tapping; but in neither period was there a rise in I.Q. nor a gain over control group in strength of grip nor in the Healy test used.

320. **Root, W. T.** "A socio-psychological study of fifty-three supernormal children." *Psych. Monog.*, 29, No. 4. Whole No. 133: 1921.

321. **Rowland, S. V.** "Individual difference among elementary grade pupils as evidenced by group intelligence tests." Eighth Annual Schoolmen's Week Proceedings, *University of Pennsylvania Bulletin*, Vol. 21, No. 37, Philadelphia, June 18, 1921, 101-04.

An account of classification based on results of the Stanford Revision and the Dearborn Tests. Special classes for inferior children were formed, also two or three groups of those remaining, and some individual instruction given.

322. **Ruch, G. M.** "An experiment with forced promotion." *Ed. Ad. and Superv.*, 6: Feb., 1920, 71-73.

The author discusses the successful promotion of ten pupils, selection having been made by means of intelligence tests. Other data valuable in a promotional scheme.

323. **Ruch, G. M.** "A study of the mental, pedagogical and physical development of the pupils of the junior division of the University High School, Eugene, Oregon." *Univ. of Oregon Publications*, Vol. I, No. 7: Sept., 1920, esp. 32-35, 46-48.

A study of 125 boys and girls. Correlations of abilities in school subjects with general intelligence were calculated and the question of acceleration and retardation discussed.

324. **Rusk, R. R.** "The supernormal child." *Childstudy Yearbook:* 1921.

325. **Ryan, H. H.** "Grouping pupils for acceleration." *El. School Jour.*, 24: Sept., 1923, 50-53.

The plan used in the Blewett Junior High School involves selections based upon chronological, mental, anatomical, and social ages, reading and arithmetic scores.

326. SAAM, THEODORE. "Intelligence testing as an aid to supervision." *El. Sch. Jour.*, 20: Sept., 1919, 26-32.

The results of an experiment given in tabular form to prove the value of the Binet tests in classifying and promoting school children. High plus correlation between mentality and school work.

327. SAKAKI, Y. "Some studies of so-called abnormally intelligent pupils." *Psych. Clin.*, 6: 1912, 18-25.

An experiment to show the need for providing proper training for superior children. The bright children of Fukuoka classified into seven groups. Results given.

328. SANDWICK, R. L. "Correlation of physical health and mental efficiency." *J. Educ. Res.*, I: 1920, 199-203.

329. SANGREN, PAUL V. "Social rating of best and poorest high-school students." *J. Educ. Psych.*, 14: April, 1923, 209-214.

An investigation in Zeeland, Mich., High School. Concludes that the scholarship of high school students is determined by the students' methods of work, application, industry, attitude, and ability to assimilate new ideas as much as by intelligence.

330. SCHLOTTE, F. "Eine experimentelle Auslese an Sprachbefähigten in der Schule." *Zeits. f. pädog. Psychol.*, 23: 1922, 29-40.

A report of the selection of superior children by means of intelligence tests.

331. SCHLOTTE, F. "Experimentelle Prüfung von Sprachbefähigten." *Pädog.—psychol. Arbeiten*, 11: 1921, 68-138. Abstract in *Psy. Bull.*, 19: 642.

332. SCHOENBECK, E. "Die Begabten in deutschen Unterricht." *Praktische Psychol.*, 3: 1922, 223-230. Abstract in *Psych. Bull.*, 19: 612-613.

333. SCHUESSLER, H.; U. SCHWARZHAUPT, W. "Die pädagogische und experimentell-psychologische Auslese der Begabten für die Übergangsklasse II in Frankfort am Main." *Zeits. f. päd. Psychol.*, 22: 1921, 188-195. Abstract in *Psych. Bull.*, 19: 279.

334. SCHUTTE, T. H. "A mental survey in the training department of the Moorehead State Teachers College, Moorehead, Minn." *Am. Sch. Bd. J.*, 65: Oct., Nov., Dec., 1922, 45-47, 53-54, 42-43.

The Otis, Chicago, and Army Alpha Tests were given to elementary pupils and rapid progress groups formed in each grade. Most of the pupils in these groups gained one semester in the year.

335. **Schwartz, O. L.** *General Types of Superior Men.* Boston. 1917.

336. **Scott, Colin R.** "General intelligence or school brightness." *J. Ed. Psych.*, 4: 1913, 509 ff.

337. **Scripture, E. W.** "Arithmetical prodigies." *Am. J. Psych.*, 4: 1891, 1-59.

A summary of mathematical prodigies and their abilities. Part two gives an analysis of their powers.

338. **Search, P. W.** *An Ideal School or Looking Forward.* New York. 1901.

339. **Search, P. W.** "Individual teaching: the Pueblo plan." *Educ. Rev.*, 7: February, 1894, 154-70.

A description of the Pueblo plan in which all work, promotion, and graduation is strictly individual. Lists a number of advantages.

340. **Seashore, C. E.** "Comments on the plan for sectioning classes on the basis of ability." *Sch. and Soc.*, Nov. 4, 1922: 514-517.

Extracts from replies to an inquiry as to the extent of sectioning classes on the basis of ability in colleges and universities.

341. **Seashore, C. E.** "Gifted children in the industries." *J. of Ed.*, 97: April 26, 1923, 461-462.

Bright children with special gifts must receive special education. Special necessary opportunities and aids for the bright children discussed.

342. **Seashore, C. E.** "The gifted student and research." *Sci.*, 56: Dec. 8, 1922, 641-648.

343. **Seashore, C. E.** "Sectioning classes on the basis of ability." *Sch. and Soc.*, 15: April 1, 1922, 353-358.

344. **Seashore, C. E.** "The talented child." *J. Educ. Psych.*, 7: 1916, 241-2.

Plea for tests which would serve to discover talent. Early discovery would make timely special education possible.

345. **Shaer, I.** "Special classes for bright children in an English elementary school." *J. Educ. Psych.*, 4: 1913, 209-222.

346. Shearer, W. J. "The Elizabeth plan of grading." *Add. and Proc. N. E. A.*, 37: 1898, 441-48.

In Elizabeth, New Jersey, promotions were made at any time upon the basis of the teacher's estimate and pupils grouped according to ability, each group going as fast as it was able. Many favorable results were obtained from this plan.

347. Shearer, W. J. "Grading for efficient organization in the interests of pupils." *Add. and Proc. N. E. A.*, 40: 1901, 285-86.

A general discussion in which the essentials of good grading are listed as follows: acceleration, classification, proper provision for reclassification, and proper apportionment of work.

348. Shearer, W. J. *The Grading of Schools, Including a Full Explanation of a Rational Plan of Grading.* New York. 1899.

349. Siders, W. R. "In class instruction, how can the individual be reached?" *Add. and Proc. N. E. A.*, 47: 1909, 175-82.

Discusses several other plans and describes that in use in Pocatello, Idaho. A combined class, group, and individual instruction system is used there.

350. Sidis, R. *Philistine and Genius.* New York. 1911.

351. Smith, Leon. "Omaha's experiment in the acceleration of gifted children." *Omaha Pub. Sch. Bull.*, Vol. 2.

352. Snedden, David. "Exceptional children." Monroe's *Cyclopedia of Education.* Macmillan Company: Vol. 2, 540-41. 1911.

Says that flexible promotion more or less takes care of exceptional children.

353. Spain, C. L. "Grouping of children by abilities and consequent changes in school procedure. 1. Procedure in Detroit." Ninth Annual Schoolmen's Week *Proceedings*, Vol. 23, No. 1, 257-63.

An account of the Detroit plan.

354. Spaulding, F. E. "The Newton educational policy." Report of Superintendent. *Annual Report of the School Committee in Newton*, Vol. 74, 15-22, 26, 1913.

States that Newton aims to provide educational opportunities adapted to all individual pupils. Parts of the general plan are to have assistant teachers to help individuals and to make promotions at any time.

355. SPECHT, LOUISE F. "Terman class in public school, No. 64, Manhattan." *Sch. and Soc.*, 9: March 29, 1910, 393-398.

An experiment with superior children and the enriched curriculum. Several methods given whereby individual differences may be met and the pupils may work to their full capacity.

356. "Special classes in Oakland, Cal." *El. Sch. Jour.*, 21: May, 1921.

Gives figures for special advancement and enriched classes in Oakland.

357. STEDMAN, LULU. "An experiment in educational democracy." *Sierra Educ. News*, 15: Oct., 1919, 515-8.

358. STEPPAT, MARGARET. "Intelligence tests in Berlin." *Jr. Exp. Pedagogy* (London), 6: Dec. 5, 1921, 170-174.

Describes tests devised by Piorkowski and Moede for use in "Begabtenschulen."

359. STERN, W. *Die Differentielle Psychologie in ihrem Methodischen Grundlagen.* Leipsig. 1911.

360. STERN, W. "The supernormal child." *J. Educ. Psych.*, 2: 1911, 143-148, and 181-190.

School systems adapted to the average pupil are uneconomical and dangerous. The problem of the gifted classes is discussed.

361. STETSON, P. C. "Homogeneous grouping in the first year of a five-year high school." *Sch. Rev.*, 29: May, 1921, 351-65.

In the Muskegon, Michigan, High School the Chicago Test was found unsatisfactory as a basis of classifying pupils but when supplemented by teachers' opinions gave better results. Both teachers and pupils favored having three groups on the basis of ability.

362. STEWART, GEORGE W. "A problem in the education of college students of superior ability." *Sch. and Soc.*, 14: Nov. 19, 1921, 439-447.

The author gives advice concerning the appointment of a committee to locate and encourage students of superior ability. Devices for encouraging super-ability discussed. Honor societies discussed.

363. STOCKTON, J. L., DAVIS, C., AND CROWN, M. A. Criteria for the regrading of schools. *El. Sch. J.*, 22: 55-66.

Describes the plan as used in San Jose. The central criterion was the M.A. with contributing criteria of chronological age with reference to social group, physical age with reference to health, pedagogical age with reference to school history, character age with reference to concentration and work. Three plans were followed: some put ahead to grade more nearly fitting them; some furnished with special coaching and then promoted; some organized for supervised experimental project work. Tables given showing promotions made.

364. Stoner, Mrs. Winifred S. "How I trained my daughter." *Ladies' World*, July, 1915. (See also numbers for Aug., Sept., and Oct.)

365. Stoner, Mrs. Winifred S. *Natural Education.* Indianapolis: The Bobbs-Merrill Co. 194.

366. Stoner, Mrs. Winifred S. "How Winifred learns." Ind., 86: April 24, 1916, 139-140.

367. Taylor, Joseph S. Measuring the pupils in a large city school —a study of Public School 107, New York City. *Sch. and Soc.*, 16: July, 1922, 25-28.

368. Taylor, J. S. "The classification of pupils in elementary algebra." *J. Educ. Psych.*, 9: 1918, 361-380.

An experiment showing that both superior and inferior pupils are injured by heterogeneous grouping. Contrasts given covering ability.

369. Taylor, J. S. "Grading and promotion." *Sch. and Soc.*, 17: April 14, 1923, 405-09.

Tells of classification in one New York City district which was based upon I.Q.'s, A.Q.'s, teachers' estimates, etc.

370. Terman, L. M. "Discussion of gifted children section." *Proceedings First Annual Conf. on Educ. Res. and Guidance*, San Jose State Teachers College. Sacramento, California: State Printing Office, 1923, 41-43.

A summary of several addresses dealing with gifted children, with some argument in favor of rapid progress rather than enriching the curriculum in the ordinary way.

371. Terman, L. M. "Genius and stupidity." *Ped. Sem.*, 13: 1906, 307-373.

372. Terman, L. M. *The Intelligence of School Children.* Boston: Houghton-Mifflin Company, 1919. 317.

A discussion of many phases of intelligence testing including general principles, the amount of individual differences found, capacity according to mental age, prediction according to the I.Q., etc.

373. **Terman, L. M.** *The Measurement of Intelligence.* Boston. 1916. Especially 95-104.

Superior intelligence is five times as common among children of superior social status as it is among children of inferior status. Fifteen percent of children are superior.

374. **Terman, L. M.** "Mental hygiene of exceptional children." *Ped. Sem.*, 22: 1915, 529-537.

Gifted children are as normal as others. One-third of children with an I.Q. of 120 or above not given proper advantages. I.Q.'s of 65-75 indicate unsatisfactory work.

375. **Terman, L. M.** "A new approach to the study of genius." *Psych. Rev.*, 29: July, 1922, 310-318.

376. **Terman, L. M.** "Precocious children." *Forum,* 52: 1914, 893-898.

Precocious children should be studied psychologically and medically. There are three classes of bright pupils. Dangers of nervous breakdowns should be studied.

377. **Terman, L. M.** "Precocity and prematuration." *Amer. J. Psych.*, 16: 1905, 145-183.

378. **Terman, L. M.** "The psychological determinist: or democracy and the I.Q." *J. of Educ. Res.*, 6: June, 1922, 57-62.

An answer to Bagley's speech against the use of the I.Q. for classifying pupils.

379. **Terman, L. M.** "Suggestions for the education and training of gifted children." *Stanford Univ. Press.* 1921.

380. **Terman, L. M.** "The use of intelligence tests in the grading of school children." *Jour. of Educ. Res.*, 1: Jan., 1920, 20-32.

Mostly a theoretical discussion of individual differences, how many pupils should be accelerated, how many retarded, etc. Summarizes what has been found as to difference of test results and teachers' opinions as showing that tests are usually more nearly right.

381. **Terman, L. M.** "Were we born that way?" *World's Work,* 44: Oct., 1922, 655-60.

Includes a plea for the conservation of talent.

382. **Terman, L. M., and Anon.** "An experiment in infant education." *J. Applied Psych.*, 2: 1918, 219-228.

383. Terman, L. M., and Chace, Jessie. "The psychology, biology, and pedagogy of genius." *Psy. Bull.*, 17: Dec., 1920, 397-409.

An annotated bibliography of the literature of this subject since 1914.

384. Terman, L. M., and Fenton, Jessie C. "Preliminary report on a gifted juvenile author." *Jr. Applied Psych.*, 5: June, 1921, 163-178.

A report concerning Betty Ford. Her school product discussed. Discussion showing that ability atrophies when encouragement is lacking. Spontaneity should be cultivated.

385. Terman and Others. *Intelligence Tests and School Reorganization.* Committee Report to Commission on Revision of Elementary Education, N. E. A. World Book Company: 1922. Esp. 12-13, 17-21, 28, 35-36, 41-44, 49-51, 73-74-83-91.

386. Theisen, W. W. "Relative progress of VII-B groups selected on the basis of ability." *Jour. Ed. Res.*, 5: 295-305.

Suggestions as to nature of curriculum for gifted.

387. Thomson, Godfrey H. "The Northumberland mental tests." *Brit. Jour. Psych.*, (General Section) Vol. 12, Part 3: Dec., 1921, 201-222.

Describes tests used "to discover gifted children worthy of free secondary education among those elementary schools of the County of Northumberland which had not this year sent any candidates for the orthodox examination in English and mathematics on which free scholarships are usually awarded."

388. Toops, H. A., and Pintner, Rudolf. Mentality and its Relation to elimination from school. *Sch. and Soc.*, 7: 1918, 507-524.

389. Toops, H. A., and Pintner, Rudolf. "Mentality and school progress." *J. Ed. Psyc.*, 10: 1919, 253-262.

390. Torgerson, T. L. "The efficiency quotient as a measure of achievement." *Jour. Educ Res.*, 6: June, 1922, 25-32.

The average slow pupil is working at a higher rate of efficiency than is the superior pupil. Factors affecting the efficiency quotient.

391. Town, C. H. *An Analytic Study of a Class of Five and Six Year Old Children.* Iowa Studies in Child Welfare, Vol. I, 1921. 87.

The study included a complete physical examination with tests for visual and auditory acuity and pitch discrimination; anthropometric measurements; speech and mental examinations. The last included 2 general intelligence tests and 49 analytic tests. The performance of each child was compared with the percentile score of the group.

392. Town, Clara H. "The superior child in our schools." *Ed. Rev.*, 65: Jan., 1923, 17-21.

393. Trabue, M. R., and Stockbridge, F. P. *Measure Your Mind. The Mentimeter and How to Use It.* Doubleday, Page and Co., New York, 1920, 65-69.

Describes an experiment in teaching gifted children in P. S. 64, New York City.

394. Trabue, M. R. "Some pitfalls in the administrative use of intelligence tests." *Jour. Educ. Res.*, 6: June, 1922, 1-11.

Superior pupils loaf. They need more work. Curricula should be enriched.

395. Trabue, M. R. "The use of intelligence tests in junior high schools." *Twenty-first Yearbook* of this Society: 1922, Part II, 169-188, esp. 183-185.

Answers some of the objections to segregation of bright pupils.

396. Triplett, N. "Pedagogical arrests and peculiarities." *Ped. Sem.*, 12: June, 1905, 141-157.

Examples are given to show that teachers may cause arrested development. Necessary relation between successful drill and interest. Two periods of arrest; seven to nine, and adolescence.

397. Trummer, Mary C. "Instruction adapted to groups of differing ability." *Sch. Rev.*, 30: June, 1922, 409-11.

Describes the 'accommodation' and 'express' classes, the 'opportunity,' 'adjustment' and 'make-up' groups used in a Los Angeles high school. Pupils are selected on the basis of their elementary school marks.

398. Tupper, C. R. "The grading of pupils in Miami, Arizona." *Educ. Res. Bull.*, 2: May 30, 1923, 163-65.

A description of the plan in use in Miami in which class groupings are made more or less on the basis of mental age. The teachers appear to favor the plan. It has reduced failure by more than two-thirds and increased acceleration considerably.

399. Ullrich, R. "Sonderwei
Neue Jahrbucher f. Pad.,

400. *University of Pennsylvan*

Contains a number of reports
the consequent changes in school p

401. Unrich, Flama. "A year
Clin., 5: 1912, 245-250

A survey of a superior class
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402. Van Alstyne, Dorothy
whose school progress was
8: Sept., 1922, 122-125.

Six of these children had a ten
cases are given in detail. The effect
titude towards the teacher.

403. Vander Zalm, H. E. An
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404. Van Sickle, J. H. "Prov
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405. Van Sickle, J. H. "Prov
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406. Van Sickle, J. H. "Rept.
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A report showing what is being
the items sent in a circular letter to

407. Van Sickle, J. H., and O
committee on provision for
schools." *Add. and Proc.*
1908, 1909.

399. Ullrich, R. "Sonderschulen f. hervorragend Befähigte?" *Neue Jahrbücher f. Päd.*, 16: 1905, 425-440.

400. *University of Pennsylvania Bull.* 1922, 23, No. 1.

Contains a number of reports of the grouping of children by abilities and the consequent changes in school procedure with account of methods used.

401. Unrich, Flora. "A year's work in a superior class." *Psych. Clin.*, 5: 1912, 245-250.

A survey of a superior class. Method of pupil selection, their mental characteristics, aims, and results achieved.

402. Van Alstyne, Dorothy. "A study of ten gifted children whose school progress was unsatisfactory." *Jour. Educ. Res.*, 8: Sept., 1923, 122-125.

Six of these children had a tendency toward emotional instability. Three cases are given in detail. The effect of home environment and the pupil's attitude towards the teacher.

403. Vander Zalm, H. E. An initial inventory of the mental capacities of primary children. *Educ.:* March, 1923, 440-445.

A discussion of the need of classification in primary grades according to ability as shown in mental tests.

404. Van Sickle, J. H. "Provision for gifted children in public schools." *Add. and Proc. N. E. A.*, 48: 1910, 155-60.

Mentions various reports and studies that had been made and tells of the Baltimore plan of giving high-school pupils extra work if they are bright enough.

405. Van Sickle, J. H. "Provision for gifted children in public schools." *El. Sch. Teacher*, 10: April, 1910, 357-66.

States that both inferior and superior children should receive special attention and that there should be groups organized on the basis of ability.

406. Van Sickle, J. H. "Rept. com. on provision for exceptional children in the public schools." *Proc. N. E. A.*, 1908, 350-1.

A report showing what is being done for the gifted child. A summary of the items sent in a circular letter to superintendents.

407. Van Sickle, J. H., and Others. "Preliminary report of the committee on provision for exceptional children in the public schools." *Add. and Proc. N. E. A.*, 46: 348-85, 47: 343-67, 1908, 1909.

A discussion of physically, intellectually, and morally exceptional children and of various provisions being made for them in Worcester, Indianapolis, Baltimore, St. Louis, Berlin, and elsewhere.

408. VAN SICKLE, WITMER, AND AYRES. "Provision for exceptional children in public schools." *U. S. Bur. Educ. Bull.*, No. 461, 92 (1911, No. 14).

409. VERNER, G. F. "Can teachers select bright and dull pupils?" *Jour. Educ. Res.*, 6: Sept., 1922, 126-132.

410. VIERECK, P. "Lateinsche Unterrichtserfahrungen an der Begabtenschulen des Köllnischen Gymnasiums." *Praktische Psychol.*, 3: 1922, 147-150. Abstract in *Psychol. Bull.*, 19: 641.

411. WARD, L. F. *Applied Sociology*. New York, 1906. Especially Chs. 8, 9, 10.

Genius defined and distinguished. Heredity discussed. Relation of heredity and environment to genius discussed. Illustrations given to show presence of genius among all classes.

412. WASHBURN, W. C. "Special provision for the bright pupil." *Pop. Educ.*, 30: Sept., 1912, 5-6.

413. WASHBURNE, C. W. "Educational measurements as a key to individual instruction and promotions." *Jour. Educ. Res.*, 5: March, 1922, 195-206.

An account of the individual system used in Winnetka.

414. WASHBURNE, C. W. "The individual system in Winnetka." *El. Sch. Jour.*, 21: September, 1920, 52-68.

Describes the system in Winnetka in which progress and promotion are entirely individual, in which most of the work is done by using practise material and then taking complete diagnostic tests. States that every teacher favors the plan, that at least five percent were saved from repeating and $5000 saved in one year.

415. WASHBURNE, CARLETON W. "Breaking the lock step in our schools." *Sch. and Soc.*, 8: Oct. 5, 1918, 391-402.

Deals with the question of individual instruction and promotion.

416. WELLS, F. L. "The relation of practice to individual differences." *Amer. J. Psych.*, 23: Jan., 1912, 75-88.

417. **Whipple**, G. M. "Educational determinism; a discussion of Professor Bagley's address at Chicago." *Sch. and Soc.*, 15: June 3, 1922, 599-602.

A strong reply to Bagley's address in which the validity and use of intelligence tests are strongly advocated.

418. **Whipple**, G. M. "Experiments in the education of gifted children." *J. Mich. Schoolmaster's Club:* 1919, 8-23.

419. **Whipple**, G. M. *Classes for Gifted Children.* Bloomington, Ill., 1919. 151.

Classifies tests with reference to their value in discovering gifted children. Chapter ten gives suggestions concerning the organization and conduct of special rooms. Shows particularly the value of intelligence tests as compared with teachers' estimates in the selection of gifted pupils. Demonstrates that the top 10 percent can do two years' work in one at least for one year. (See also references to Henry and to Coy.)

420. **Whipple**, G. M. "The problem of selecting and training gifted children in the public schools." *Bull. Extension Div. Indiana Univ.*, 4, No. 4: Dec., 1918, 6-16.

421. **Whipple**, G. M. "Provision for the education of gifted children in the United States." *Mother and Child, Supplement:* Sept., 1923. 12.

Describes briefly various plans for handling gifted pupils in the elementary schools and lists the cities in which these plans are being tried.

422. **Whipple**, G. M. "Some features of the education of gifted children." *Sch. and Soc.*, 12: Sept. 11, 1920, 175-179.

A discussion, in the form of questions and answers, of six special features of the problem of meeting the needs of supernormal mentality.

423. **Whipple**, G. M. "The supernormal child." *J. Educ. Psych.*, 2: 1911, 164-287.

The report calls attention to the articles by Stern, showing how his plans may be adapted to the supernormal as well as to the sub-normal.

424. **Whipple**, G. M. "Supernormal children." *Cyclop. of Educ.*, 1913.

425. **Whitcomb**, M. **Edith**. "Intelligence tests in the primary grades." *Jour. Educ. Res.*, 5: January, 1922, 58-61.

An account of the work done with the Stanford Revision in Council Bluffs, Iowa. Gives various data and shows that the plan of placing pupils by test scores works well.

426. WHITNEY, F. P. "Equality and the schools." *Educ.*, 33: October, 1912, 84-90.

427. WHITNEY, F. P. "Provision for accelerant and retarded children in junior high school." *Sch. Rv.*, 27: Dec., 1919, 695-705.

In the Collinswood Junior High School of Cleveland pupils were placed by school marks and test results.

428. WHITTIER STATE SCHOOL, Whittier, Cal. "Exceptional children in the schools of Santa Ana, Cal." *Dept. of Res. Bull.*, No. 6, 24-25.

429. WILHELM, H. "Beitrage zur Begabungspsychologie auf Grund des Lehrerurteils. *Zeits f. angew, Psychol.*, 19: 1922, 291-341. Abstract in *Psy. Bull.*, 19: 290.

430. WILLIAMS, J. H. "Delinquent boys of superior intelligence," *J. of Delinquency*, 1: March, 1916, 33-52.

431. WILLIAMS, T. A. "Intellectual precocity. Comparison between John Stuart Mill and the son of Dr. Boris Sidis." *Ped. Sem.*, 18: 1911, 85-103.

Intelligent direction towards selected objectives essential for precocious children. Trained teachers needed. Naughtiness connotes energies denied proper outlets.

432. WILLIAM, T. A. "Principles and methods which result in intellectual precocity." *Lancet Clinic*, 1915, 1-28.

433. WINCH, W. H. *When Should a Child Begin School? An Inquiry into the Relation Between the Age of Entry and School Progress.* Educ. Psychol. Monographs: Warwick York, Baltimore, 1911.

434. WITMER, L. "Retardation through neglect in children of the rich." *Psych. Clin.*, 1: 1900, 157-174.

Illustrations given to prove that retardations may occur in very wealthy homes and very poor homes. Tutors are sometimes handicapped by improper home conditions.

435. WITMER, L. "Qualities of very bright children." *Psych. Clinic*, 13: 1919, 38 ff.

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436. WITMER, L. "
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437. WITTE, K. *Th*
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438. [illegible], MABE
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439. WOODROW, H.
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440. WOODS, ELIZAB
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441. WOODY, CLIFFO
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442. [illegible], A.
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443. WORCESTER, MA
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444. [illegible], CARL.
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445. YATES, DOROTHY
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436. WITMER, L. "The training of very bright children." *Psych. Clin.*, 13: Dec., 1919, 88-96.

437. WITTE, K. *The Education of Karl Witte* (Eng. trans. by L. Wiener, edited by H. A. Bruce), New York. 1914.

438. WOBURN, MASS., SCHOOL COMMITTEE. *Annual Reports.* 1903, 1914.

439. WOODROW, H. *Brightness and Dullness in Children*, Philadelphia. 1919. (Especially Chs. XIII and XIV.)

440. WOODS, ELIZABETH L. "Provision for the gifted child." *Educ. Adm. and Superv.*, 3: 1917, 139-149.

A statistical summary of cities providing for exceptional children. Results of special promotion justify the administrative officials.

441. WOODY, CLIFFORD. "Tests and measures in the schoolroom and their value to the teachers." *Sch. and Soc.*, 6: July 21, 1917, 61-66.

Mentions others but especially tells of an experiment in Chatham, N. J. On the basis of scores on five achievement tests the best pupils were given extra promotions. All did well and led in their new classes.

442. WOOLFOLK, A. "The case of him that hath ten talents," *Virginia J. of Educ.*, 11: Sept., 1917, 18-22.

443. WORCESTER, MASS., SCHOOL COMMITTEE. *Annual Reports*, 1902, 1904, 1912.

444. WURTH, CARL. "Intelligence tests and promotions." *Am. Sch. Bd. J.*, 65: Dec., 1922, 50-51.

An argument against segregating bright pupils for three reasons: They should spend more time getting work better; their absence reduces the enthusiasm of the class; they acquire vanity and false pride.

445. YATES, DOROTHY H. "Impressions from two years spent in testing gifted children." *Proc. First An. Conf. Educ. Res. and Guid.*, San Jose State Teacher's Coll., Sacramento, Cal., State Printing Office; 1923, 29-33.

A discussion of gifted children with some argument to the point that training for leadership does not need to be begun early and that bright pupils can be forced too much.

446. **Yates, Dorothy H.** *A Study of Some High School Seniors of Superior Intelligence.* Bloomington: Public School Publishing Co., 1922. 75.

This is a study of the twenty-five brightest seniors of Oakland high schools in comparison with 25 of average intelligence. It was found that the pupils with superior intelligence were quicker in learning to talk and walk, in cutting first teeth, and in reaching physiological maturity; and were more interested in school, athletics, and music, but less in art.

447. **Yates, Dorothy H.** "A study of twenty high-school seniors of superior intelligence." *Jour. Ed. Psych.*, 11: May-June, 1920, 264-274.

Relation of home conditions and physique to proper development. Vocational aims and intellectual interests of gifted and average pupils discussed.

448. **Yoder, A. H.** "The study of the boyhood of great men." *Ped. Sem.*, 3: 1894, 134-156.

449. **Young, K.** "Genius, what is it? Can it be anticipated?" *Ped. Sem.*, 30: June, 1923, 172-176.

Genius is complex and cannot be reduced to objective standards. It cannot be written in the form of two variables: intellectual and emotional traits.

450. **Zauck, C.** "Sonderklassen f. hevorragend begabte Schüler. *Pädagogische Zeitung*, 41: Feb. 15, 1912, 109-112 (See also 112-114).

451. **Zirkle, H. W.** "Character and results of special rooms as conducted in the Whittier School of Denver." *El. Sch. Jour.*, 21: November, 1920, 189-97.

Pupils are placed in regular, accelerated, and retarded rooms according to test results, age, school marks, health, etc.

452. **Zirkle, H. W.** "Taking care of the gifted child." *The Technique of Supervision by the Elementary School Principal. The First Yearbook of the Department of Elementary School Principals.* Washington: National Education Association, May, 1922, 81-86.

In a Denver school, superior pupils are selected by individual and group tests, school marks, effort, and physical condition and are given the opportunity to gain time. Practically all of the pupils selected are able to gain time and still continue to make high school marks.

453. Zornow, T. A., and Peckstein, L. A. "An experiment in the classification of first-grade children through the use of mental tests." *El. Sch. Jour.*, 23: October, 1922, 136-46.

In Rochester, New York, over 400 entering pupils were tested with the Stanford Revision and classified according to the test results. Later the Detroit First-Grade Group Test was used. It was found that but few pupils had to be shifted after being thus placed.

Information Concerning the National Society for the Study of Education

1. Purpose. The purpose of the National Society is to promote the investigation and discussion of educational questions. To this end it holds an annual meeting and publishes a series of Yearbooks.

2. Eligibility to Membership. Any person who is interested in receiving its publications may become a member upon application to the Secretary and subsequent approval by the Executive Committee. Membership may not be had by libraries or by institutions.

3. Period of Membership. Applicants for membership may not date their entrance back of the current calendar year, and all memberships terminate automatically on December 31st, unless the dues for the ensuing year are paid as indicated in Item 6.

4. Classes of Members. Application may be made for either active or associate membership. Active members pay two dollars dues annually, receive two copies of each publication, are entitled to vote, to hold office and to participate in discussion. Associate members pay one dollar dues annually, receive one copy of each publication, may attend the meetings of the Society, but may not vote, hold office or participate in discussion.

5. Election Fee. New active and new associate members are required the first year to pay, in addition to the dues, an election fee of one dollar.

6. Payment of Dues. Statements of dues are rendered in October for the following calendar year. By vote of the Society at the 1919 meeting, "any member so notified whose dues remain unpaid on January 1st, thereby loses his membership and can be reinstated only by paying the election fee of one dollar required of new members." School warrants and vouchers from institutions must be accompanied by definite information concerning the name and address and class of membership of the person for whom membership fee is being paid.

7. Distribution of Yearbooks to Members. The Yearbooks, ready each February, will be mailed from the office of the publishers and only to members whose dues for that year have been paid. Members who desire Yearbooks prior to the current year must purchase them directly from the publishers (see Item 8).

8. Commercial Sales. The distribution of all Yearbooks prior to the current year and also of those of the current year not regularly mailed to members in exchange for their dues is in the hands of the publishers, not of the secretary. For such commercial sales, communicate directly with the Public School Publishing Company, Bloomington, Illinois, who will gladly send a price list covering all the publications of this Society and of its predecessor, the National Herbart Society.

9. Yearbooks. The Yearbooks are issued in parts (usually two) every February. They comprise from 250 to 500 pages annually. Unusual effort has been made to make them on the one hand of immediate practical value and on the other hand representative of sound scholarship and scientific investigation. Many of them are the fruit of co-operative work by committees of the Society.

10. Meetings. The annual meeting, at which the Yearbooks are discussed, is held in February at the same time and place as the meeting of the Department of Superintendence of the National Education Association.

Applications for membership will be handled promptly at any time on receipt of name and address.

GUY M. WHIPPLE, Secretary-Treasurer.

University of Michigan,
Ann Arbor, Michigan.